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TRANSACTIONS
Conn. State Agricultural Society
1857.

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the Secretary of the
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22 April 1858

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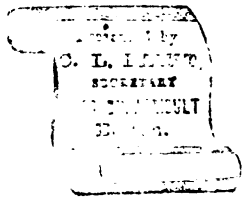

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TRANSACTIONS

OF THE

Conn. State Agricultural Society,

FOR THE

YEAR 1857,

WITH THE

REPORTS OF THE COUNTY SOCIETIES

FOR THE SAME YEAR.

PUBLISHED BY ORDER OF THE EXECUTIVE COMMITTEE.

HENRY A. DYER, COR. SEC.

OFFICE OF THE SOCIETY, POST-OFFICE BUILDING, HARTFORD.

HARTFORD:
PRESS OF CASE, LOCKWOOD AND COMPANY.
1858.

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1858 Mail 22

The gift of
Edwin D. Mead, Esq. of Boston
May 1, 1900
Secretary of the Massachusetts
Board of Education

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INDEX.

CONN. STATE AGRICULTURAL SOCIETY, Officers of, . . 5
Act of Incorporation, . . 6
Constitution of, . . . 8
Report of Executive Committee, 11–30
Treasurer, . . 31
Annual Meeting, 33–38
Report of Prof. S. W. Johnson, Chemist to Society, . 41-94
Annual Address by Donald G. Mitchell, Esq., . . 95–116
Report of Judges on Short Horn Bulls, . . . 117
Short Horn Cows, . . . 118
Devon Bulls, ... 119
Devon Cows, ... 120
Herefords, Ayrshires and Alderneys, 121
Imported Stock, . . . 122
Grades Durham Cross, . . 123
Devon Cross, . . . 124
Native Stock, . . . 125
Working Oxen six years old, . . 126
Working Oxen five years old, . 128
Working Oxen four years old, . 129
Steers, ... 129
Team of Oxen, . . . 130
Milch Cows, . . . 131
Fat Cattle, ... 132
Stallions and Mares of all work, . 133–136
Draft Stallions and Mares, . . 136
Matched Horses, . . . 136
Draft Horses, . . 137
Family Horses, . . . 138
Roadsters, ... 139.
Four in hand teams, . . 140
Horses from without the State, . 140
Long-wool Sheep, . . 141
Middle-wool Sheep, . . . 142
Merino Sheep, . . . 143
Saxons and Grades, . . . 143
Fat Sheep, . . . 144
Imported Sheep, . . . 145
Suffolk Swine, . . . 145
Other Swine, . . . 147

Digitized by Google

Report of Judges on Poultry, ... 148
Plowing, ... 148–151
Farm Implements, . . . 151–156
Tools, Machinery, &c., . . . 156
Butter, ... 157
Cheese, ... 158
Honey, ... 159
Grain and Seed, ... 159
Vegetables, ... 160
Flour, Bread, &c., . . . 161–164
Silk Manufactures, . . . 164
Household Manufactures, . . 165
Fancy Articles, ... 166
Cotton and Woolen Goods, . . 168
Silver Plated Ware, . . . 169
Fire Arms, ... 169
Cutlery, ... 169
House Trimmings, . . . 170
Brass Ware, ... 170
Instruments, ... 170
Wooden Ware, ... 171
Boots, Shoes, &c., . . . 171
Hats, Caps, &c., ... 172
Tailors' Work, ... 172
India Rubber, ... 172
Stoves, ... 172
Paper, ... 173
Cabinet Ware, ... 173
Carriages, ... 173
Musical Instruments, . . . 174
Miscellaneous Articles, . . 174
Fine Arts, ... 176
Pears, ... 177
Apples, ... 178
Special Fruit Premiums, . . 179
Flowers, ... 179
Fruits, ... 180
Field Crops, ... 182–189
Farms and Reclaimed Lands, 189–225
Hartford County Agricultural Society, . . 227
Fairfield County Agricultural Society, . . . 229–239
New London County Agricultural Society, . . 240–245
Tolland County Agricultural Society, . . . 246–253
Windham County Agricultural Society, . . 254–259
Middlesex County Agricultural Society, . . 260, 261
Greenwoods Agricultural Society, . . . 262, 263

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OFFICERS

OF THE

Connecticut State Agricultural Society,

FOR THE YEAR 1857.

President.

NATHANIEL B. SMITH, . . . WOODBURY.

Vice-Presidents at large.

CHARLES H. POND, ... MILFORD.
NORMAN PORTER. . . . . BERLIN.

Vice-Presidents, ex-officio.

JAMES T. PRATT, of Rocky Hill, for Hartford County.
BENAJAH IVES, of Cheshire, for New Haven County.
CHARLES HUBBARD, of Middletown, for Middlesex County.
ROBBINS BATTELL, of Norfolk, for Litchfield County.
DAVID GALLUP, of Plainfield, for Windham County.
EPH. H. HYDE, 2d, of Stafford, for Tolland County.
T. B. BUTLER, of Norwalk, for Fairfield County.
J. P. BARSTOW, of Norwich, for New London County.

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Directors.

H. A. GRANT, of Enfield, for Hartford County.
B. H. ANDREWS, of Waterbury, for New Haven County.
ELIAKIM HOUGH, of Bridgeport, for Fairfield County.
D. F. GULLIVER, of Norwich, for New London County.
Wm. H. PUTNAM, of Brooklyn, for Windham County.
T. L. HART, of West Cornwall, for Litchfield County.
FREDERIC HALL, of Middletown, for Middlesex County.
R. B. CHAMBERLAIN, of Coventry, for Tolland County.

County Directors.

FREDERIC W. RUSSELL, of Portland, for Middlesex County.
A. H. BYINGTON, of Norwalk, for Fairfield County.
MOSES LYMAN, of Goshen, for Litchfield County.
NATHANIEL HAYWARD, of Colchester, for N. London Co.
EZRA DEAN, of Woodstock, for Windham County.
JOHN S. YEOMANS, of Columbia, for Tolland County.
NOAH W. STANLEY, of New Britain, for Hartford County.
for New Haven County.

Corresponding Secretary.

HENRY A. DYER, ... BROOKLYN.

Recording Secretary.

THEO. S. GOLD, ... WEST CORNWALL.

Treasurer.

F. A. BROWN, ... HARTFORD.

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ACT OF INCORPORATION

AND

CONSTITUTION

OF THE

CONNECTICUT STATE AGRICULTURAL SOCIETY.

At a General Assembly of the State of Connecticut, holden at New Haven, in said State, on the first Wednesday of May, in the year of our Lord one thousand eight hundred and fifty-two:

SEC. 1. *Resolved by this Assembly*, That Charles H. Pond, Robbins Battell, Thomas A. Mead, Henry A. Dyer, David S. Fowler, James T. Pratt, Thomas Cowles, Ephraim H. Hyde, 2d., Charles Robinson, William Stone, Henry P. Havens, Edwin Newbury and William Holman, together with such persons as may hereafter become associated with them, be, and they are hereby incorporated by the name and style of the "Connecticut State Agricultural Society."

SEC. 2. The object of the Society being the improvement of agriculture, horticulture and the household arts, they shall be, and are hereby, for those purposes, made capable in law, to have, purchase, receive, possess and enjoy, to them and their successors, land, rents, tenements, hereditaments, goods, chattels and effects, of what kind and quality soever, necessary to give effect to the purposes of this Society, and

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the same to sell, grant, demise, alien and dispose of, to sue and be sued, plead and be impleaded, defend and be defended in all courts in this State or elsewhere.

SEC. 3. The said Society shall have power to appoint such officers, as they may deem expedient, and also to make, ordain, establish and put in execution, such by-laws and regulations as shall be deemed necessary and convenient for the well ordering and government of said Society, and not contrary to this act and the laws of this State and of the United States, and to do and execute all and singular, the matters and things which to them may or shall appertain to do, subject to the rules and provisions, herein above prescribed.

SEC. 4. This act may be altered, amended or repealed at the pleasure of the General Assembly.

CONSTITUTION.

SEC. 1. This association shall be called the "Connecticut State Agricultural Society," and its object is improvement in agriculture, horticulture and the arts.

SEC. 2. The society shall consist of those citizens of the State who shall pay one dollar into the treasury annually. There may also be honorary and corresponding members. The payment of fifteen dollars or more, shall constitute the donor a member for life and shall exempt him from the annual contribution.

SEC. 3. The officers of this Society shall be a President, two Vice-Presidents, a Corresponding Secretary, a Recording Secretary, a Treasurer, and one Director from each county, to be chosen at the annual meeting of the Society. The above, together with the Presidents of the County Societies, who shall be, *ex-officio*, Vice-Presidents of the Society, and one director from each county to be chosen by the

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County Society, shall constitute the Executive Committee of this Society, which committee shall elect three members of its own body to constitute the Finance Committee of the Society. The officers of the Society shall hold their office for the term of one year, or until others are appointed in their stead. The Executive Committee shall take charge of and distribute or preserve all seeds, plants, books, models, *etc.*, which may be transmitted to the Society; shall have charge of all publications; shall have power to fill any vacancies which may occur in the offices during the year; shall have charge of the interests of the Society in the counties in which they shall respectively reside, and shall have the general control of all matters pertaining to the interests of the Society.

SEC. 4. The Recording and Corresponding Secretaries shall perform the duties usual to such officers. The funds of the Society shall be in the custody of the Treasurer, who shall pay them out and invest them under the direction of the Finance Committee. He shall give bond to the satisfaction of the Finance Committee, for the faithful performance of the duties of his office; said bond shall be renewed as often as the same person is elected to office. It shall be the duty of the Treasurer to keep a particular account of the receipts and expenditures of the Society. He shall exhibit to the Executive Committee, as often as required, the state of the treasury, and shall present to the Society, at its annual meeting, a full statement of his account audited by the Finance Committee.

SEC. 5. There shall be an annual meeting of the Society on the second Wednesday of January, at such place as shall be fixed upon at the previous annual meeting, at which all the officers of the Society shall be elected by ballot. Extra meetings may be convened by the Executive Committee, and at such meetings, twenty-five members shall constitute a quorum.

SEC. 6. The Society shall hold an annual Cattle Show and Fair at such times and place as shall be designated by the Executive Committee.

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SEC. 7. This Constitution may be amended by a vote of two-thirds of the members attending any annual meeting.

[ANNUAL MEETING.—The Report of the Annual Meeting held January 7th, 1857, was published with the Transactions for the year 1856, page 155.]

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REPORT

OF THE

EXECUTIVE COMMITTEE.

HARTFORD, JAN. 8th, 1857.

THE Executive Committee of the Connecticut State Agricultural Society met at the office of the Society.

B. H. Andrews in the Chair.

Robbins Battell, Esq. suggested a division in the premiums to be offered on cheese, making two classes; one of the cheese called English Dairy cheese, the other on cheese made after the ordinary manner.

Mr. N. A. Bacon tendering his resignation of the office of Treasurer, it was

Resolved, That the thanks of the Executive Committee be extended to Mr. Bacon for his services during the past year, and while we regret his resignation, it is deemed that the finances of the Society will not warrant an increase of the salary hitherto paid the Treasurer.

Resolved, That a committee of one be appointed to receive the assets of the Society from the Treasurer and pay them over to his successor in office.

Resolved, That T. S. Gold be appointed this Committee.

Resolved, That F. A. Brown, of Hartford, be appointed Treasurer in place of N. A. Bacon.

Resolved, That Robbins Battell and T. S. Gold be a committee to wait upon Mr. Brown and inform him of his appointment.

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Resolved, That the salary of the Chemist be four hundred dollars per annum.

The Committee appointed to wait upon Mr. Brown report his acceptance of the office.

Resolved, That the Salary of the Corresponding Secretary be one thousand dollars per annum and the necessary traveling expenses.

Resolved, That Gen. James T. Pratt, E. H. Hyde, 2d. and T. S. Gold, be a Committee to wait upon the Corresponding Secretary and inform him of the action of the Committee.

Committee adjourned to meet at 1.30 P. M.

Committee met pursuant to adjournment.

The Committee appointed to wait upon the Corresponding Secretary report that Mr. Dyer respectfully declines the proposed salary and tenders the resignation of his post to the Executive Committee.

Report was laid upon the table for future action.

The following gentlemen were elected as a committee to take action under the resolution of the Society in reference to a permanent location.

John A. Taintor,	of Hartford.
Charles Robinson,	New Haven.
A. H. Byington,	Norwalk.
D. F. Gulliver,	Norwich.
S. D. Northway,	South Norfolk.
Charles Mathewson,	Pomfret.
F. W. Russell,	Portland.
R. B. Chamberlain,	Coventry.

The following gentlemen were appointed a committee to locate the Exhibition for 1857:

N. B. Smith, E. H. Hyde, 2d, Charles Hubbard.

The following gentlemen were appointed Finance Committee:

N. B. Smith, James T. Pratt, R. B. Chamberlain.

The following gentlemen was appointed a sub-committee of the Executive Committee and vested with full powers of said Committee.

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N. B. Smith, Henry A. Dyer and T. S. Gold.

Resolved, That the Sub-Committee be authorized at their discretion to offer Herd Premiums on Devons and Durhams, for animals owned and raised by the Exhibitor.

A list of premiums was passed to be offered for the next Exhibition, and Committee adjourned to meet at 9 o'clock, A. M. Jan. 9th.

JANUARY. 9th.

Committee met pursuant to adjournment.

N. B. Smith in the Chair.

Resolved, That the report of the Committee of conference with the Corresponding Secretary be in order at 11 o'clock.

At which time the report of Committee was called for after hearing the same.

Resolved, That the vote passed fixing the salary of the Corresponding Secretary be reconsidered.

Resolved, That the Salary of the Corresponding Secretary be paid at the usual rate, viz. Twelve hundred dollars per annum and his necessary traveling expenses.

Resolved, That we request the Corresponding Secretary to visit the different counties of the State as far as is consistent with his other duties.

Resolved, That T. S. Gold be appointed a committee to report to the Corresponding Secretary.

Resolved, That the following gentlemen be appointed to bring a standard of weight for grain and roots before the Legislature:

James T. Pratt, Henry A. Dyer, and H. A. Grant.

Committee adjourned *sine die*.

BRIDGEPORT. OCT, 12, 1857.

At a meeting of the Executive Committee held at the Sterling House, the President in the chair.

Resolved, That a Committee of three be appointed by the President to fill vacancies in boards of judges.

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D. F. Gulliver, F. W. Russell and Herman Baldwin were appointed.

A Committee of reception to consist of Messrs Calhoun and Bishop of Bridgeport, Mr. Canfield of New Milford, and Gen. E. A. Phelps of Colebrook, was appointed.

Committee adjourned to meet at the fair ground at 8.30 A. M., Oct. 13.

Committee met at the ground pursuant to adjournment.

Resolved, That J. N. Blakeslee have leave to remove his steers from the grounds on Friday morning, to send them to New Jersey.

Resolved, That the matter of receiving money be left to the discretion of the Treasurer.

Committee adjourned to meet a 2 P. M.

Committee met at the Sterling House, Oct. 14.

Resolved, That the Treasurer be directed to pay to Truman Kellogg of New Hartford, the premiums awarded to him at the State Fair in New Haven, Oct., 1856.

Resolved, That the Treasurer be directed to pay to Peleg C. Child, fifteen dollars for the use of horse ridden by him as Marshal at the State Fair in Hartford.

Committee adjourned to meet at the Fair ground at 8.30 A. M. Oct. 15.

Oct. 15.

Committee met at the Court House.

Resolved, To divide the class of 4 years old oxen into two classes, Devon and Durham grades.

Adjourned to meet at Sterling House at 7.30 P. M. Oct. 16.

Committee met pursuant to adjournment.

Resolved, To print twelve hundred copies of the Transactions of the Society for 1857.

Resolved, That the subject of a fat sheep entered by Mr. Hart, be referred to Gideon Thompson Esq., for inquiry.

Resolved, That the discretionary premiums awarded by the Committees be paid by the Treasurer as awarded.

Committee adjourned, *sine die*.

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The Fourth Annual Exhibition of the Society held, as it was, at the time when the financial crisis which has so stricken down the manufacturing and mercantile interests of the country, and thus disastrously affected every productive interest in Connecticut, was at its culminating point, affords the most encouraging evidence that there is a sound, earnest disposition among the farmers of the State to support and make effective the State Agricultural Society. We have every reason to be proud of the display that was made. There never was a better show of the characteristic stock of a portion of our State, the beautiful Devons, than was witnessed at Bridgeport; and the County pride that led to a strong effort on the part of the breeders of Litchfield County to have their stock shown distinctively, was certainly excusable, for that portion of the State did itself great credit in the splendid exhibition it afforded.

Another of the developments of the skill and persevering efforts of our stock breeders in the show of Working Oxen, was beyond praise, and we may safely challenge the whole Union to make in any section a better show than was made at this fair in these two classes of stock.

The show of Short Horn stock was highly gratifying, evincing, as it did, the capacity of our lands to grow a class of cattle that will bring credit to our graziers for fine beef. Some specimens of Fat Cattle shown would seem to claim from their size and character that they had had a luxurious life of it among the blue grass pastures of Kentucky; that they could have been brought to the condition they were in under the short summers and rigorous winter of our latitude, is evidence of excellent management on the part of their owners.

The Sheep breeders were out in stronger force than at any previous exhibition of the Society, and there is every reason to hope that this desirable class of stock will receive soon the increased attention it merits. There is no reason to doubt that this branch of husbandry can be made to add largely to the profits of our farmers, and it is much to be desired that in every section of the State more sheep should be raised.

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The fine and large mutton sheep that were exhibited are a standing reproach to the miserable specimens of diminutive carcasses called mutton that are offered for sale in our markets. There is no animal food that is more healthful and that can with more economy and advantage to consumer and producer become one of the staple articles in the diet of our people than large, handsome, well-fatted mutton. It can be made more speedily, and at much less cost, and can be disposed of more readily, and at far less expense in its preparation for market than beef. It is vastly more wholesome and can be made with more profit than pork. Its general introduction as one of the staples of our State would increase the annual marketable value of our products to an extent that one who has not made it a subject of investigation would scarcely surmise. Mutton is not a favorite food with our people from the fact that they have had no opportunity to know what good mutton is; that that goes by the name in general market is no more like the mutton that is offered for sale in England, brought to this country in the steamers, and served at the New York eating-houses, than horse-flesh is like venison, and there is no beef made that will command so high a price in any large market in our country as fine mutton. There is no reason why Connecticut should not to a very large extent supply the New York market with this food; and any farmer who will get himself into fame as a grower of fine mutton, may consider his fortune made, as he will find a ready market for all he can make, and a price that will satisfy him. There are no serious difficulties in the way of this husbandry that can not be overcome by prudent care. A thorough system and close careful attention are indispensable to success; with these, any man with a few acres of land can make a good business in sheep culture.

One difficulty, which is beyond the control of the farmer, arises from the destruction caused by dogs. An ineffectual attempt was made to induce the Legislature of the State at its last session to so modify the law that is at present upon the statute book, that it will answer some useful purpose.

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As it stands at present it is of no value, and the sheep owner has no protection. Some action on the part of the Society that will give, through Legislative action, security to the large body of farmers who are now utterly unable to engage in this lucrative branch of industry, will have a valuable influence.

The entries of Horses were not as numerous as at previous fairs, owing to the rule that was established by the executive committee, requiring the payment of five dollars entrance fee on family horses, roadsters, and matched horses; but the character of those entered was much superior to the average of entries in former years. The display of young stock, four years and under, was uncommonly large and very fine. More attention seems to have been paid to *blood* than formerly, there being colts on the gronnd from several noted well-bred stallions. No premium was offered for fancy, matched, or fast double teams; and there was a noticeable falling off in matched horses. The arrangement requiring a payment on entries for the above named classes, worked admirably and to the satisfaction of exhibitors, as the track was not crowded with horses that were entered merely for the purpose of obtaining free access to the grounds. It is difficult to tell what influence this measure had upon the receipts of the Society, but as near as could be judged by receipts at the carriage entrance, the amount received was much greater than when the old system was practised. At any rate, the business of the exhibition was facilitated to a degree that would warrant some little sacrifice, and no complaint from any quarter has come to the executive committee on this account.

The show of Swine was not large. Some fine animals were shown; and the influence that has been exerted by the introduction of the Suffolk stock in lessening the offal, and securing finer points in other classes of swine, is very apparent.

The Poultry-show was less numerous than at any of our previous fairs. This is a lucrative branch of home industry, and should receive more careful and economic attention at the hands of our farmers.

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The agricultural and mechanical operations of Connecticut are intimately blended, and the industry of the State is of mutual dependence; the farmer derives great advantage from the neighboring manufactory, and the artizan of every class finds benefit from the plentiful results of the labor of the agriculturist. The industry of the State in every mode of its manifestation tends to the glory of our Commonwealth, and it has been and should continue to be the object of this Society to promote every branch of industrial art. The manufacturers of the State have in a measure lent their efforts to further this design of our organization, but there has not been that heartiness of coöperation that could be made and which is essential to the thorough accomplishment of the end to be desired. There has been a feeling that in exhibiting the products of our factories and shops, the Society was being benefited; and wares have been shown not with a disposition to make it advantageous to the exhibitor, but as a sort of patronage to the Society, and the show has been far from being a fair exposition of the manufactures of the State; and from the fact that there has been but this partial effort on the part of manufacturers, the benefit that would most certainly ensue from a full exhibition has not been attained. The show has not been made sufficiently full and attractive to demand attention from abroad. Manufacturers claim that they have all the business they can do, and that no advantage would come to them by the obtaining of more orders if more orders could be gained by the display of their wares at the annual exhibitions of the Society. This may be true in individual cases, and yet it is emphatically true that a thorough show of the industrial products of the State made year by year would, from the universal attention it would demand and receive, change the mode of doing business, or be a preparatory step to a change that would result in universal benefit to the manufacturing interest of the State. Any step that brings purchaser and maker in closer connection is an advantage to both parties, and the annual show would eventuate ultimately in a permanent exhibition that would make one of

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the most attractive and creditable points of interest in the State.

The show at Bridgeport was meager and by no means to the honor of the State, although the individual exhibitors, from the character of their wares, obtained, as they well deserved, the most hearty encomiums. A large and commodious building was erected which was sparsely filled. A building for machinery, with an engine from the Pacific Iron Works in operation, was almost entirely empty, and this which might have been made one of the most attractive portions of the exhibition, was an utter failure.

The display of the handiwork of the Ladies was less than usual, and the general show in the buildings was not as full as at any of the previous exhibitions of the Society.

The show of Dairy produce, Vegetables, Horticultural products, &c., was full and very much to the credit of the exhibitors.

As a whole, the exhibition of 1857 was far from being a failure in point of excellence, and the general verdict must be favorable notwithstanding the failure in some points. The wonder is, that in the general wreck of property and credit, there should have been a show of so great interest; that there should have been so many at such a time to exert themselves, under the general business anxiety and panic, to promote the credit of the State.

The Address was delivered by Donald G. Mitchell, Esq., of New Haven, and was listened to by a large and thoroughly interested audience. At its close, on motion of Gen. James T. Pratt, the thanks of the Society were extended to the orator, and the Corresponding Secretary directed to request from Mr. Mitchell a copy of the address for publication in the Transactions of the Society.

The citizens of Bridgeport, through a committee, guaranteed to the Society the sum of two thousand dollars, and at the same time proffered the services of marshals and superintendents without charge to the Society, and a piece of ground at a rental of $150. These obligations were all promptly met, and efficient and valuable aid was rendered

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by the several gentlemen, serving voluntarily as marshals and superintendents, and a general disposition to render courteous and liberal hospitality was evinced by the citizens at large.

The grounds were as fine as could be desired, in close proximity to the railroad, rendering the change of stock to and from the cars easy, and saving much trouble and expense to the exhibitors. The same liberal policy which has marked the action of the several railroad companies in the State, was followed through the past year. Stock and articles were taken to and from Bridgeport free of charge; and to the several superintendents and other officers of the roads the Society owe acknowledgment for courteous and ready co-operation in the business of the exhibition.

In view of the position of the Society in pecuniary matters, as shown by the Report of the Treasurer, making evident a deficiency of some five hundred dollars to meet its liabilities, we would recommend that effort should be made to procure a sufficient number of life memberships to meet the deficit. This mode, if a sufficient number of members can be procured, of which we entertain no doubt, is much preferable to any measure that leaves the institution in debt. A loan might be difficult to obtain, and would be felt as a weight upon the Society. The obligations already incurred by the Society must of course be met, and they are not of a character that can well be extended until after another exhibition, and the easiest mode would appear to be the one suggested.

The arrangements that are still to be made to carry out the operations of the Society for the year, also demand consideration and provision. The Transactions for the year are to be printed. The Executive Committee have ordered 1200 copies, in place of 4000. If the Transactions of the County Societies are not printed, as has been the case, with those of the State Society, the amount of money required for this diminished number will not be large. It is very desirable that the system which has hitherto prevailed should not be abandoned; and if possible some ar-

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rangement should be made whereby there should be an uniformity in the publications of the Society. The County Societies, by the payment of a less sum than it would cost to publish their Transactions separately, would secure the record of the State and County Societies.

The position of the Society is such as to make it a grave question for the consideration of the meeting, as to the expediency of holding an exhibition in the current year. The issue of a premium list embracing as large an amount of money as those we have in previous years put forth, under the present condition of affairs, will perhaps be deemed inexpedient. The proffer of a smaller amount of premium would fail to induce exhibitors to present their products.

The Executive Committee, after careful consideration, would respectfully submit the following course of action to the consideration of the Society, as in their opinion the one best calculated to accomplish the objects designed :

A Committee should be appointed to ascertain if any arrangement can be made with citizens of Hartford and New Haven to procure grounds in each of these cities, with the required fixtures for the purposes of the exhibition, with the understanding that the fairs of the Society shall alternate between the two cities. The grounds so appropriated in the years when they are not used by the State Society, will be well adapted to the purposes of the County fairs, and can be used by the proprietors for such other purposes as may make the investment a remunerative one. In case an arrangement can not be made in both cities, the fair to be held in the one that shall make provision for the accommodation of the Society to the satisfaction of the Executive Committee.

The disadvantage of the established mode of holding the exhibitions of the Society in different sections of the State, has been more signally manifested this present year than usual. There was every disposition manifested on the part of the citizens of Bridgeport to forward the success of the fair, and a liberal contribution was made to secure the show.

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The receipts at the gates were but little more than enough to cover the account for structures and labor. Had the show been held in the vicinity of a larger city, there can be no doubt that the increase of receipts from the people of the town would have been large, more than enough to have met the deficiency in the Treasury. There was a Committee appointed at the last annual meeting to take into consideration the question of a permanent location. From this Committee we shall probably hear.

A Committee should also be appointed to solicit from the Legislature an appropriation to meet the wants of the Society. This appropriation should be sufficiently large to meet any deficiency in the treasury of the Society that may accrue from unfortunate weather or other influences tending to render the receipts at the exhibitions less than the liabilities.

A premium list should be prepared to be issued only in case proper arrangements can be made with one or both the cities named, and that the Legislature shall favorably regard the petition of the Society.

The question of Biennial shows is to come before the Society. There may be advantage in holding our exhibitions but once in two years. If such course is decided upon, there should be some provision for the continuance of the organization of the Society in the interval year; and some provision made that such year should not be a waste one. If Legislative appropriation can be gained, a thorough agricultural survey of the State may be made, in a few years, by the Secretary of the Society, taking sections of the State and making himself thoroughly acquainted with the country and the crops, the mode of farming, the buildings, and general character of its agriculture, embodying his operations in a report to be made to the Society and the Legislature.

This may be made a very valuable means of improvement in various ways. The circulation through the State of a close analysis of the farming of one and another section, will be of immense advantage to all parties, and the suggestions and advice that may be given by an able and prac-

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tical man to the farmers in personal intercourse with them, will make an unrecorded and not directly to be appreciated advantage that will tell in new drained swamps, in better barns, in neater homesteads, and more careful tillage in every branch of husbandry, that will increase the aggregate of products of the State that will largely over-pay the amount of money it will cost.

The action of the Society at the last annual meeting in securing the services of a chemist, has proved efficient beyond the expectations of the warmest friends of the measure.

Mr. Johnson has made sixty-three analyses, many of them, all save the peats, have been made in duplicate. Forty-eight of these have been made in the current year. The particulars of these analyses will be found in Mr. Johnson's report. The community have been protected in a very efficient manner from the exposition of worthless manures for sale in our markets. During the past year scarcely one very inferior or worthless commercial manure could be found in Connecticut. Manufacturers or dealers who could not with safety warrant their manures have sought other markets.

The agricultural uses of cotton-seed oil-cake have been carefully examined and clearly shown, bringing to the notice of our farmers a valuable and rarely used article of food, which is now rapidly coming into general use.

Mr. Johnson has found and demonstrated that the peat and muck beds, of which Connecticut is full, are mines of incalculable wealth. But sixteen specimens have been analyzed; from these few Mr. J. shows that some of the peats he has analyzed contain 3 to 3½ per cent. of potential ammonia in their air-dry state. Guano contains 16 per cent. of ammonia. Three-quarters of the manurial value of this fertilizer is due to its ammonia. Five tons of peat, with the named per centage of ammonia, will yield in time the same amount of this valuable ingredient as a ton of guano which costs $60 and is not lasting in its effects. If chemistry can, and there is no doubt of its ability, direct us to the advantageous use of these vast deposits, enable us to select those

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which are most valuable, teach us how to reduce them to a condition in which they will act most rapidly in promoting the growth of crops, it must be conceded that she will henceforth rank as the farmer's truest and surest ally and friend.

The investigation Mr. Johnson has already made is but preliminary. He has not had the time or means to make more than a beginning. The subject is a very wide one and requires a great amount of labor and research to do it justice. The work already bestowed upon the peats alone could scarcely be had of any professional chemist for the whole amount of our appropriation to Mr. Johnson. We owe it to his interest in agricultural development, and to the unusual facilities which his connection with the chemical and agricultural department of Yale College furnish him, that we have secured so much. The State Society can not afford to lose the honor and reward of carrying out these investigations in the future on a greatly extended scale. With fraudulent or inferior manures we shall have little to do henceforth if we continue to employ a chemist; and if the State Society can not from its own fund continue and increase the chemical grant, it is much to be desired that by private subscription it should be done. Connecticut can not afford to give up this measure which has already in our own country and abroad given her signal honor. The Royal Agricultural Society of England, and the Highland and Agricultural Society of Scotland, each appropriate from $3000 to $4000 a year to sustain their chemical department which, under the charge of eminent men like Dr. Anderson and Prof. Way, are steadily growing in favor, and are now considered indispensable to the full usefulness of those Societies. In Germany, so greatly has the importance of bringing the aids of science to bear upon agriculture been felt, that within the last four years no less than thirty-two agricultural laboratories have been established, mostly in connection with agricultural societies, or under government patronage. We have the opportunity to do a work, at almost a nominal expense, that will reflect more credit upon the Society, and result in more

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benefit to our own people and to the agricultural interest of the whole country, than can result from any other operation of the Society. The fairs of a dozen years will hardly yield as important advantages as may be made to result from the use of the analyses of peat made in the past year.

The fact can not be too strongly impressed that aside from the defensive operations of the chemist in shielding ourselves and others from worthless manures, peats and muck, which we now use to a limited extent, yet with marked advantage, are now proved many of them worth $12 a ton, estimating only one of their valuable ingredients.

At the last annual meeting of the Society some suggestions were made in reference to the desirableness of instituting some method for the collection and custody of specimens of the natural, agricultural, and artistic products of the State. This is a matter that should engage the attention of the Society, and earnest effort should be made to make a beginning at the earliest practicable moment, of a collection of this character. The greatest difficulty in the matter is the procuring a proper place for the bestowal of the material that would offer, so soon as a proper call shall be made for it. The lack of room has been the only reason why effort has not been made under the resolution of the last year. In many neighboring States accommodation for this end is furnished by the State. The splendid collection of the New York State Agricultural Society finds abundant and fitting place of deposit in the old State House, refitted at great expense. In Massachusets liberal accommodation is provided in the State House for the offices of the Board of Agriculture and for its collection of products. Our own State, in its duality of capitols, can find in its own buildings scant room for this purpose; but in Hartford or New Haven, at small expense to the State, proper and ample provision could be made. A collection of this character, in connection with the office of the Society, would go far to insure the prosperity of the institution; it would give a tangibility to the Society, more character and credit to its operations, than can be gained by the mere holding of an annual show, and the

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divided occupancy of a single upper room. A letter has been received by Mr. Charles J. Hoadly, State Librarian, from Mr. Alexander Vattermare, which contains the following proposition which, in this connection, we would bring to the notice of the Society:

"In the No. of the 'Journal d'Agriculture practique,' of June last, in the case, you will find an article relative to the series of seeds, grains, etc., etc., provided by the New York Agricultural Society, and exhibited at the Palace of Industry during the Horticultural fair of 1856. My intention in enclosing this Journal was to call the attention of the agricultural societies and farmers of your noble State, and invite them to co-operate likewise in the system of exchange, and to enable me to place here the fruitful results of their labors, as well as the inexhaustible territorial resources of Connecticut, side by side with the glorious specimens of the intellectual riches of the State. Besides, I feel most anxious to see the cultivators of the two worlds united together by this fraternal association, for the exchange of cereals and everything likely to increase our material welfare, is as well calculated to strengthen international good-will, and cement friendship, as those destined to the intellectual food; and by popularizing these relations between the agricultural societies and cultivators of the world, we are laying the foundations of our system upon the most solid basis, resting as they would upon the largest and most substantial part of mankind.

* * * * * * *

"Should the agricultural societies feel disposed to answer to my call, and form in Connecticut, as is the case in Europe, an Agricultural Museum, to contain specimens of the agricultural products of the several countries of the world, I shall feel most happy to place myself at their disposal to collect the European specimens; but it would be necessary to let me have at first as complete a series as possible of specimens of Agricultural and Horticultural products of Connecticut in sufficient quantity to enable me to form six or seven small collections to be offered for exchange."

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The attention of the Society has been called in previous years to the evils which are complained of, and justly, by exhibitors in every class, incident to the mode of making up the awards of premiums. The delegating this important duty to committees selected from different sections of the State, and the division of the list into some eighty classes, rendering necessary the choice of two hundred and forty men to fill the committees, has been the practice of the Society from the beginning. The difficulties attending this method are briefly these:

It is necessary, in order to satisfy all, that these men should be selected as impartially as possible, not only from every county, but there is a feeling that every town should have its due allotment of honor in the choice of some of its citizens to appear on the list as judges. This is right enough; and so far as is possible the Executive Committee have sought to accomplish this; but the making up the list, and choice of judges, is a work of time, and the members of the Executive Committee from the several counties are unable or unwilling to remain one or two days to make up this list; hence it happens that sometimes three and sometimes five of the eight counties will not have a man present at the meetings of the Board when the judges are chosen. Of course those counties that are unrepresented can not have a satisfactory choice; as men resident in Hartford county can not judiciously select the right men for the right place in Fairfield or New London counties; hence dissatisfaction in reference to the first selection. As soon as the list is published notice is sent to the gentlemen chosen, with the request that they will signify their acceptance of the post. Perhaps half will say they will come, and half of these will be able to.

The Committees are to be filled on the ground. This offers a fine opportunity for pipe-laying and managing that can not be known or obviated by the Committee appointed to discharge this important duty. The result is that in many cases men are appointed where they should not be. In some cases the unfitness is from incompetence, in others because

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they are in interest; hence complaint, and disgust with the Society, and serious injury to the interests of exhibitors. It is patent that some other and better plan must be instituted, or we shall lose the interest of exhibitors, and make the awards no criterion of merit. The show of fairness in this wide distribution of committees is but a show, and the best interests of all concerned can be maintained by a plan which will with a less number of men secure more rational results.

There are two modes to accomplish the desired end which suggest themselves. If the members of the Executive Committee, resident in the several counties, will secure the attendance of the thirty men required from each county, selecting those that are well known to be fully qualified for the posts that they shall be required to fill, and send the names to the Corresponding Secretary allotted to the several committees, that shall be given them to fill, and will take it upon themselves to see that the appointees or substitutes appear, and report themselves ready for the discharge of their duties at the fair grounds on the *first day* of the exhibition; the present mode of distribution of judges through the several counties may be adhered to, and the business of awards judiciously discharged. This is however hardly practicable, from the fact that the members of the Executive Committee in many of the counties will not follow up the business with the diligence and earnestness that will be required to make their action effective. The difficulty of procuring 240 men to attend to this business is almost insuperable, and the show of fairness in awards that would seem to result from this wide selection, is done away with in fact.

A better mode may be found in putting the whole matter of awards into the hands of the executive committee, dividing the committee into sections and giving each section the responsibility of the decision of awards in the several classes that may come under its hands, empowering them to select such men to assist them in their investigations as they may choose. In this manner prompt and efficient decisions early in the exhibition may be attained and careful and de-

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liberate consideration given to each and every article, with much less risk of favoritism and mistake than now.

At the last session of the Legislature a resolution was offered, the last night of the Session, annulling the annual grant made by the Legislature of the previous year, appropriating $2500 to the uses of the Society.

The resolution was hurriedly passed without giving the Society any opportunity to appear, and it was only by the quick thought of a gentleman from Bridgeport that the appropriation for the current year was retained. It is undoubtedly true that if a motion to this end had been introduced earlier in the session the same result would not have obtained as from the entire unanimity which has marked the passage of resolutions for the appropriation to the State Society, in previous years, it is evident that there is a disposition throughout the State to mantain the institution as one of the best instrumentalities for the promotion of the interest of our commonwealth. The Agricultural Society of Connecticut has taken a stand in the foremost rank of kindred institutions, has made itself a name and an honorable one in the country, and there is too much State pride among our people to allow it to fail from the lack of that sustaining influence that is extended to like institutions in almost every State in our federation. This is an organization that is above all parties, one in which no sectional, political or personal issues should be allowed to have influence to defeat its strength or usefulness, and all parties in the commonwealth should look upon it with jealous interest and see that it is not used for the furtherance of any political issue or for the aggrandizement of any individual. Each party should be careful that it does not meddle with this Society for its partizan advancement, as any advantage gained that should implicate the Society or give it a partizan character will be sure eventually to prove a disastrous movement to the party initiating it.

In some of our neighboring states, as in New York, the agricultural Society is the institution of the state that all political parties delight to know, and the strife so far as *it*

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is concerned between rival factions is which shall give itself the best hold upon the general approbation of the State at large by most heartily advancing the operations of the Agricultural Society.

This spirit should prevail in our own State and the changing and comparatively indifferent interest of political factions should never be allowed to overshadow and do damage to the more important interests involved in this organization.

HENRY A. DYER,

Corresponding Secretary.

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Treasurer's Report.

THE CONNECTICUT STATE AGRICULTURAL SOCIETY IN ACCOUNT WITH F. A. BROWN, TREASURER.

1857. DR.

To cash paid for printing Transactions, and Advertising, in 1856,		$2.062.50	
"	Other Expenses of Fair at New Haven, in 1856, - - -	94.50	
"	Framing Diplomas, in 1856,	123.00	
			2.280.00
"	Hay, Straw, and Feed, for Fair at Bridgeport, in 1857,	512.62	
"	Grading Track, - - "	162.00	
"	Expenses, Committee on Farms, "	87.88	
"	Clerk Hire, - - "	304.68	
"	Office at Hartford, - "	75.00	
"	Printing Posters, Advertising, "	542.05	
"	Premiums, - - "	3,881.00	
"	Medals, - - - "	190.00	
"	Fences and Buildings, - "	2,918.42	
"	Amount refunded on Horses, "	168.00	
"	Use of Tents, - - "	470.00	
"	Surveying Track, - "	25.00	
"	Rent of Fair Ground, - "	160.00	
"	Water Pipes and Use of Water, "	157.72	
"	Waterbury Brass Band, "	75.00	
"	Filling Diplomas, "	39.00	
"	Incidental Expenses of Fair at Bridgeport, in 1857,	532.97	
"	Salary of Secretary, - "	1,200.00	
"	Traveling Expenses of Secretary and other officers, - -	370.99	
"	Stationery, - - -	20.37	
"	S. W. Johnson, Chemist, one year's Salary,	400.00	
"	Treasurer, one year's Salary,	100.00	12.392.70
"	Balance, Cash on hand to new account,		32.53
			$14,705.23

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1857.	Cr.		
By Cash received of N. A. Bacon, late Treas'r,		$1,185.48	
"	for Money Loaned, - -	3,116.50	4,301.98
"	from Citizens of Bridgeport,	2,000.00	
"	" Abijah H. Beach, for Life Mem.,	15.00	
"	" State Treasurer for State Appro.,	2,500.00	
"	of M. H. Wilson for privilege of furnishing Meals, - -	600.00	
"	for Membership Certificates,	27.00	
"	of John Osborn for difference in Diploma Frames, - - -	1.13	
"	Memberships and Sales of Tickets at Bridgeport, - -	5,169.52	
"	Interest on Cash Loaned,	90.60	10,403.25
			$14,705,23

F. A. BROWN, *Treasurer.*

Hartford, January 11th, 1858.

Meriden, January 12, 1858.

We have this day examined the foregoing account, with the vouchers, and find it correct.

Nathaniel B. Smith,
James T. Pratt,
Rufus B. Chamberlin,
Finance Committee.

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REPORT

OF

ANNUAL MEETING.

At a meeting of the Connecticut State Agricultural Society held at Bridgeport Oct. 16th, 1857, on the Fair Grounds. N. B. Smith President in the chair, at the close of the address by Donald G. Mitchell Esq., of New Haven, the following resolution was offered by Gen. James T. Pratt and unanimously passed by the Society.

Resolved, That the thanks of the Society be presented to Mr. Mitchell for his able address and that the Corresponding Secretary be requested to solicit a copy for publication in the Transactions of the Society.

T. S. GOLD,
Recording Secretary.

The sixth annual meeting of the Connecticut State Agricultural Society was held at the Town Hall in Meriden, Jan. 15th, 1858, at 10 A. M. Nathaniel B. Smith Esq., of Woodbury, President, in the Chair.

At the call of the President, members were invited to the renewal of their membership by the payment of the annual fee.

The Report of the Recording Secretary was read and accepted.

F. A. Brown, Treasurer, presented his report which was

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read in synopsis. The report was accepted and the summary was ordered to be recorded.

The Report of the Executive Committee was presented by the Corresponding Secretary, giving an account of the operations of the Society for the past year and making suggestions for future action. Upon question of its acceptance, various points were discussed by Gen. J. T. Pratt, Charles Hubbard, Prof. S. W. Johnson and others. The report was then accepted.

Motion for adjournment till 2 P. M. was lost.

Mr. Johnson, the Society's Chemist, presented his report. After hearing a portion of the report, on motion, the Society adjourned till 2 P. M.

The Society met according to adjournment. Prof. Johnson completed the reading of his report. On motion of Mr. Weld, the report was accepted and ordered to be published in the Transactions. Mr. R. Linsley here presented to the President a beautiful bouquet from Mr. Henry Willis, of Meriden.

The report of the Committee on permanent location, being called for, Mr. Taintor, Chairman of the Committee, reported "that as he was opposed to the project he had declined serving and had done nothing further."

Mr. R. H. Phelps presented the following resolution which was passed.

Whereas, an association has been formed in this State, for the purpose of encouraging the culture of the grape and the manufacture of wine, we hereby manifest our approval of the enterprise and cheerfully commend its objects to the favorable consideration of the people of this State.

The Society then proceeded to the election of officers. Mr. E. H. Hyde, of Stafford, suggested that the present officers should be reappointed by acclamation, but was referred to the constitutional provision, that they should be chosen by ballot.

Mr. Hyde in view of the financial position of the Society, asked the Corresponding Secretary if he could not remit the charge for his traveling expenses the ensuing year. Mr.

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Dyer replied he would not require traveling expenses of the Society the ensuing year, and if the financial condition of the Society required, he would submit to a still further reduction of his compensation. For it was only in consideration of the present condition of the Society and the representations of its friends that he was willing to retain the post.

The following gentlemen were chosen officers for the ensuing year.

President.

NATHANIEL B. SMITH, of Woodbury.

Vice-Presidents.

CHARLES H. POND, of Milford.
NORMAN PORTER, of Berlin.

Directors.

THOMAS COWLES, of Farmington, for Hartford County.
LEVI YALE, of Meriden, for New Haven County.
ELIAKIM HOUGH, of Bridgeport, for Fairfield County.
D. F. GULLIVER, of Norwich, for New London County.
PELEG C. CHILD, of Woodstock, for Windham County.
T. L. HART, of W. Cornwall, for Litchfield County.
GEORGE S. HUBBARD, of Middletown, for Middlesex County.
R. B. CHAMBERLAIN, of Coventry, for Tolland County.

Corresponding Secretary.

HENRY A. DYER, of Brooklyn.

Recording Secretary.

T. S. GOLD, of West Cornwall.

Treasurer.

F. A. BROWN, of Hartford.

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The presidents of the County Societies being *ex-officio* Vice Presidents of the State Society, with the County Directors, belong to the Executive Committee.

Vice-Presidents.

James T. Pratt, of Rocky Hill, for Hartford County.
Benajah Ives, of Cheshire, for New Haven County.
J. P. Barstow, of Norwich, for New London County.
Thomas A. Mead, of Greenwich, for Fairfield County.
Charles Matthewson, of Pomfret, for Windham County.
J. M. Wadhams, of Goshen, for Litchfield County.
F. W. Russell, of Portland, for Middlesex County.
Eph. H. Hyde, 2d, of Stafford, for Tolland County.

County Directors.

John E. Cowles, of Farmington, for Hartford County.
B. H. Andrews, of Waterbury, for New Haven County.
James A. Bill, of Lyme, for New London County.
Crosby, of Danbury, for Fairfield County.
Albert Day, of Brooklyn, for Windham County.
Moses Lyman, of Goshen, for Litchfield County.
M. H. Griffin, of Middletown, for Middlesex County.
John S. Yeomans, of Columbia, for Tolland County.

On motion of M. C. Weld, the following resolution was passed.

Resolved, That this Society appoint Prof. S. W. Johnson as Chemist for the ensuing year, at a salary to be fixed by the Executive Committee, not to exceed four hundred dollars.

Mr. T. L. Hart offered the following resolution, which was passed.

Resolved, That the Executive Committee be directed to appoint a Committee of two from each County to petition the Legislature to

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make an annual grant from the State Treasury for the use of the Connecticut State Agricultural Society.

A motion was made by Mr. R. Linsley, that the next annual meeting of the Society be held at Meriden.

Amendment proposed substituting Hartford for Meriden. Amended to substitute New Haven.

Question on the amendment taken by Ayes and Noes, forty in favor and twenty-three opposed.

Motion to meet at New Haven then passed.

Mr. Charles Hubbard, of Middletown, offered for the use of the Society twenty-five acres of land well enclosed, with a good half mile track, in Middletown, if the Society would adopt that city for a permanent location.

Mr. Hubbard was requested to present the offer in writing to the Executive Committee for their consideration.

On motion of Mr. Byington, of Norwalk,

Resolved, That the Executive Committee be authorized to adopt such measures as they deem fit in regard to the location and arrangement of the next annual fair.

The usual vote on salaries was then passed as follows.

Resolved, That suitable salaries be paid to the Secretary, Treasurer and Chemist for their services, the amount to be fixed by the Executive Committee.

Previous to adjournment the following resolutions were passed.

Resolved, That the thanks of the Society be extended to the citizens of Meriden for the courteous hospitality and desirable accommodations afforded to individuals and the Society.

Resolved, That the thanks of the Society be presented to Mr. H. Willis for his beautiful bouquet and display of flowers.

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Resolved, That the Executive Committee receive proposals from different towns in the State in regard to a permanent location of the Annual Fair of this Society.

Society adjourned, *sine die*.

T. S. GOLD,
Recording Secretary.

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REPORT OF

PROFESSOR S. W. JOHNSON,

CHEMIST TO THE SOCIETY.

Henry A. Dyer, Corresponding Secretary Connecticut State Agricultural Society.

Dear Sir.—Herewith I have the honor to present my First Annual Report as Chemist to the Society. It comprehends the analytical results I have obtained on the following fertilizers, viz:

Four Peruvian Guanos.
Two Pacific Ocean Guanos.
One Ichaboe Guano.
One Baker's Island Guano.
Twenty Superphosphates.
Five Columbian Guanos.
Four Poudrettes.
One Cotton-seed Cake.
Seventeen Peats.
Two Peat-ashes.
Five Miscellaneous. Making a total of sixty-two samples.

Of these, the majority have been analysed twice, in order to avoid any possibility of injuring unjustly the interests of manufacturers or dealers. Of these sixty-two samples, forty-eight have been examined during the present year. The other fourteen analyses are from my investigations of 1856, and have been included in this report for the reason that

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they serve to illustrate the changes that have taken place in the value of several kinds of fertilizers, or otherwise complete the Report. In some instances where it facilitates the study or appreciation of the results, I have devoted some space to elucidating the chemistry and general bearings of my subject; and for this purpose have quoted more or less from my articles on fertilizers, which have appeared in the Homestead during the last two years.

The investigation of peat which I begun at your instance, has been prosecuted as far as possible, but is yet so incomplete, for reasons that will be more fully entered into in the Report itself, that I desire to resume the subject, before making a final Report, if such be the pleasure of the Society. I have therefore given only the most important general results that have been arrived at in reference to this subject.

As the Connecticut State Agricultural Society has for its object to develop not only the agricultural, but all the industrial resources of our State, I have alluded to the successful employment of peat in the manufacture of various useful products employed in the arts, and to its uses as a cheap and efficient fuel.

I have deemed it due to the Society as well as to myself to describe the methods I have employed in my analyses. This is done in an appendix, and is of course not intended for the general reader, but will enable men of science to judge of the reliability of the results I have laid before the Society.

I have at the conclusion of my Report alluded to some other important subjects of investigations which might be undertaken with advantage.

Before entering into the account of my analyses of manures I must state what you can testify to, that since my appointment a year since as chemist to the Society, it has been difficult to find in all our markets any positive impositions upon the farmers in the way of fertilizers. Accordingly the *eclat* of showing up glaring humbugs is not a distinguishing feature of my labors during the last year. I trust however that the comparative freedom of our State from

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fraudulent manures is a sufficient recompense for the fund which the Society has appropriated to my investigations.

Finally, I have prefaced my Report with some general considerations relative to the nature, uses, and abuses of manures, which I hope will be of service in guiding to their judicious application.

SAMUEL W. JOHNSON,

Professor of Analytical and Agricultural Chemistry in Yale College.

NEW HAVEN, Ct., January 12, 1858.

INTRODUCTORY.

GENERAL CONSIDERATIONS ON MANURES.

1. *What are manures?*

Manures are substances which are incorporated with the soil for the purpose of supplying some deficiency in the latter. However numerous and different may be the materials which assist the growth of plants, judging them by their origin, external characters and names, chemistry has in late years demonstrated that they all consist of only about a dozen forms of matter, which will be specified below.

2. *How manures act.*

Manures may act in three distinct ways.

1st. *They may enter the plant as direct nutrition.* Carbonic acid, water, ammonia or nitric acid, sulphuric acid, phosphoric acid, silica, oxyd of iron, chlorine, lime, magnesia, potash and soda, are the elements of vegetable nutrition—the essential plant-food.

In a fertile soil all these materials are accessible to the plant. If one of them be absent, the soil is barren; if a substance that contains the missing body be applied to the soil, it makes the latter fertile.

2d. *Manures may act partly as solvents, or absorbents,* and thus indirectly supply food to the plant, e. g., lime, gypsum, salts of ammonia, &c.

Soils are infertile not only from the absence or deficiency

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of some one or more of the above-named forms of plant-food, but also for other reasons. The food of the plant must be soluble in water, so as thus to be transmitted into the plant as rapidly as needed. Soils are often unproductive because the stores of plant-food they contain are locked up in insoluble forms. Lime, guano, the products of the decay of vegetable matters, often fertilize a field merely by their solvent action on the soil. Gypsum acts as an absorber or fixer of ammonia.

3d. *Manures improve the physical characters of the soil*, i. e., make it warmer, lighter, or heavier, more or less retentive of moisture, &c. Such are some manures that are often applied in large quantity, as lime, marl, and muck.

A soil is often barren, not because it has no supplies of nutriment for the plant, neither for the reason that those supplies are insoluble; but because the soil itself is so wet or dry, so tenacious and impenetrable, or so light and shifting, that vegetation fails to find the physical conditions of its growth and perfection.

Almost all our ordinary fertilizers exercise to a greater or less degree all these effects. Thus lime, on a clay soil, may, 1st., mechanically destroy the coherence and tenacity of the clay, and give it the friability of a loam; 2d., chemically decompose the clay, making potash, soda, ammonia, &c., soluble, and, 3d., be directly absorbed and appropriated by the plant.

3. *Exhaustion of the soil by cropping, and renovation by weathering.*

Under cultivation there is removed from the soil by each crop, a greater or less quantity of plant-food. The stores of nutriment in the soil thus continually become smaller and smaller.

By the action of the atmosphere (weathering), assisted by pulverization of the soil (tillage), the insoluble matters of the soil are gradually made soluble and available to vegetation.

There is thus constantly going on in the soil an exhausting, and as constantly, a renovating process. In most soils under ordinary cultivation, the exhaustion, or removal of plant-

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food, proceeds more rapidly than the supply by weathering. Such soils therefore tend to become unproductive. In a few cases, the solution of the materials of the soil itself, goes on so rapidly that there is always present in them an excess of all the matters requisite to nourish vegetation. These soils are inexhaustible.

To assist in maintaining the first class of soils in a state of productiveness, manures are employed.

4. *Comparative agricultural value of different fertilizers.*

It is obvious from the foregoing considerations that manures are required to exercise very different functions in different cases, according to the character of the soil, as determined by its origin and by its previous treatment. The soil itself is constantly changing under culture, so that what is useful on my neighbor's soil that has been tilled and cropped for twenty years, may be quite valueless on mine which is just reclaimed from the forest. What benefits my soil this year, may be of no perceptible advantage next year.

In how far manure is needed for the special purpose of supplying the soil with food for vegetation, it is often difficult to decide. If a new and good soil is repeatedly cropped until it ceases to yield remunerative returns, it may be that addition of some *one* substance, lime, or potash, or sulphuric acid, will restore its fertility. It more often happens that *several* bodies are deficient; but *what* is deficient can only be certainly learned by actual trial. In any special case that substance is most valuable as a manure, (in so far as the *direct* nutrition of the plant is concerned,) which is most deficient in the soil in accessible form.

As regards the indirect action of manures, in virtue of their absorbent or solvent powers, and as regards their effects in meliorating the texture and other physical characters of the soil, practical men have established certain rules, founded on extended experience, which it is not needful to recapitulate here.

Thus much is certain: that one fertilizing agent has no absolute and invariable superiority over another, for all are equally indispensable. The superiority that any one manure

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may be reputed to possess, depends upon circumstances. Circumstances are exceedingly various and continually changing. The reputation and local value of manures is equally various and changing.

In some regions, as in certain districts of Pennsylvania, *lime* is considered the best manure. In numerous localities, *plaster* (sulphuric acid and lime,) is chiefly depended upon. In some districts, superphosphate of lime; in others, Peruvian guano, is almost exclusively used.

Among the substances essential to vegetation, there are some which almost never fail from the soil. Thus, oxyd of iron and silica are present in every soil. Lime and sulphuric acid, may often be wanting. Potash and soda are not unfrequently deficient. Available ammonia and phosphoric acid are likewise often liable to exhaustion.

Ammonia and phosphoric acid, which possess the highest commercial value among fertilizers, have been considered by some whose opinions are of weight in the agricultural world, to possess also a decidedly greater agricultural value than other manures. It is asserted that in the growth of certain crops, and in fact those crops which best remunerate the farmer, these substances are most rapidly exhausted from the soil. Now it is undoubtedly true that on the soils of certain districts, and in certain courses of cropping, the application of ammoniacal and phosphatic manures produces the most striking results; yet it is by no means proved, or even probable, that on the whole, all soils and all systems of cropping included, these bodies are oftener lacking, or oftener and more permanently useful, than some of the other fertilizing substances.

5. *What manures are most often and most generally useful?*

While we can not accord to any simple manure, or to any single ingredient of a manure, a universal fertilizing superiority, it is true that some manures are more useful than others, on account of their compound nature. The more ingredients a manure can supply to vegetation the more useful it is. Stable manure is the universal and best fertilizer, because it contains everything which can feed the plant. Swamp muck, straw, and vegetable refuse generally,

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are of similar character. Fertilizers, like lime, plaster, salt, &c., which contain but a few ingredients, can not in general be depended upon for continuously maintaining the fertility of the soil.

6. *Uses of special manures.*

Special manures, i. e., manures which contain some one or few ingredients, are of use, very rarely as the farmer's chief reliance, but often as adjuncts to stable manure. Several special manures may often be so combined as to make an effectual substitute for stable manure. In high-farming, and in market gardening, and generally where circumstances admit of raising the most exhausting crops without fallow. laying down to grass, or rotation of any sort, special manures are most advantageously employed. In ordinary mixed farming they are useful in assisting to reclaim or improve poor lands; but in the best practice they play as yet a very subordinate part, unless peculiar circumstances make them extraordinarily cheap.

7. *Comparative commercial value of manures.*

The commercial value of a manure is measured by its price, and may be quite independent of its real agricultural value, though it usually depends considerably on its *reputed* agricultural value. The scarcity of a substance, the cost of preparation and transportation, the demand for it on account of other than agricultural uses—all these considerations of course influence its price. It is commercially worth what the dealer can get for it, so much per bushel or ton.

8. *Valuation of manures.—What substances are to be regarded as commercially important in costly manures.*

In any fertilizer which is sold as high or higher than half a cent a pound, there are but three ingredients that deserve to be taken account of in estimating its value. These are ammonia, phosphoric acid, and potash. Every thing else that has a fertilizing value may be more cheaply obtained under its proper name. If the farmer needs sulphuric acid he purchases gypsum; if he needs soda, common salt supplies him. Every thing but these three substances may be procured so cheaply, that the farmer is cheated if he pays

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ten dollars per ton for a manure, unless it contains or yields one or all of these three substances in considerable proportion.

9. *Mechanical condition of manures.*

Nothing is so important to the rapid and economical action of a manure as its existing in a finely pulverized or divided state. All costly fertilizers ought to exist chiefly as a fine, nearly impalpable powder, and the coarser portions, if any, should be capable of passing through a sieve of say eight or ten holes to the linear inch. The same immediate benefits are derived from two bushels of bones rendered impalpably fine by treatment with oil-of-vitriol, ten bushels of bone-dust, and one hundred bushels of whole bones. Fineness facilitates distribution, and economizes capital.

10. *Chemical condition of manures—State of solubility, &c.—Ammonia, potential and actual—Phosphoric acid, soluble and insoluble.*

The solubility of a manure is a serious question to be considered in its valuation. We are accustomed to speak of ammonia as existing in two states, viz.: *actual* and *potential.* By actual ammonia, we mean ready-formed ammonia; by potential ammonia, that which will result by decomposition or decay—"that which exists in possibility, not in act." Now the former is almost invariably soluble with ease in water, and is thus readily and immediately available to plants; while the latter must first become actual by decay, before it can assist in supporting vegetation.

In Peruvian guano we have about half of the ammonia ready formed, and easily soluble in water; the remainder exists in the form of uric acid, which yields ammonia by decay in the soil, but may require weeks or months to complete the change. In leather shavings or woolen rags the ammonia is all potential, and as these bodies decay slowly, they are of less value than guano as sources of ammonia. Oil-cake, (linseed and cotton-seed,) contains much potential ammonia, and in a form that very speedily yields actual ammonia.

Phosphoric acid may occur in two different states of solubility; one readily soluble, the other slowly and slightly

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soluble in water. The former we specify as soluble, the latter as insoluble phosphoric acid. In Peruvian guano we find 3.5 per cent. of soluble phosphoric acid, existing there as phosphates of ammonia and potash. The remaining 10 to 12 per cent. is insoluble, being combined with lime and magnesia. In most other manures, genuine superphosphates excepted, the phosphoric acid is insoluble.

11. *The reasonable price of phosphoric acid, ammonia, and potash.*

I. *Insoluble phosphoric acid.* There are several substances now in market which, as fertilizers, are valuable exclusively on account of their content of phosphoric acid; which, moreover, are at present the cheapest sources of this substance that possess the degree of fineness proper to an active fertilizer. These substances are the phosphatic guanos, (Columbian and American guano,) and the refuse bone-black of the sugar refineries. From them we can easily calculate the present lowest commercial value of phosphoric acid. If we divide the price per ton of Columbian guano, $35, by the number of pounds of phosphoric acid in a ton, which, at 40 per cent., amounts to 800 pounds, then we have the price of one pound as nearly 4⅓ cents.

Refuse bone-black may be had for $30 per ton; it usually contains 32 per cent. of phosphoric acid. The same division as above gives us 4⅔ cents as the cost of phosphoric acid per pound.

In this report I shall adopt the average of these figures, viz.: 4½ cents, as the reasonable price of insoluble phosphoric acid.

Phosphoric acid is much cheaper in crushed bones; but this material is not in a suitable state of division to serve as the basis of a fair estimate.

II. *Soluble phosphoric acid.* This is nearly always the result of a manufacturing process. Professor Way, chemist to the Royal Agricultural Society of England, estimates its worth at 10½ cents per pound. Dr. Voelcker, of the Royal Agricultural College of England, and Dr. Stoeckhardt, the distinguished Saxon Agricultural Chemist, reckon it at

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12½ cents per pound. They have deduced these prices from that of the best commercial superphosphates. In this report the price will also be assumed at 12½ cents. This, I believe, is considerable more than it is really worth, but is probably the lowest rate at which it can now be purchased.

III. *Actual ammonia.* The cheapest commercial source of this body is Peruvian guano. Although it contains several per cents of potential ammonia, yet the latter is so readily converted into actual ammonia, that the whole effect of the manure is produced in one season, and therefore we may justly consider the whole as of equal value with actual ammonia.

Good Peruvian guano contains:

2	per	cent.,	or	40	pounds	per	ton	of potash.
3	"	"	"	60	"	"	"	soluble phosphoric acid.
12	"	"	"	240	"	"	"	insoluble " "
								and yields
16	"	"	"	320	"	"	"	ammonia.

The potash may be neglected. If then we add together the values of the phosphoric acid, soluble and insoluble, and subtract the sum from the price of guano, ($65 per ton,) we shall arrive at the worth of the ammonia, as follows:

60×12½=$7.50, and 240×5=$12.00, together, $19.50.

$65.00—$19.50=$45.50, the value of 320 pounds of ammonia.

$45.50÷320=14 cents, nearly, the value of one pound.

This price, 14 cents per pound, will be employed in this report.

IV. *Potential ammonia.* The value of this varies so greatly, being, for example, as uric acid in guano, not inferior to actual ammonia, while in woolen rags it is not worth more than one-half as much—that we can fix no uniform price, but must decide what it shall be, in each special case, separately.

V. *Potash.* The value of potash is difficult to estimate, because it may vary exceedingly according to circumstances. Wood ashes are its chief sources; these are poor or rich in potash according to the kind of tree that yields them, and

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the soil on which it has grown. It may vary from five to twenty per cent. Stoeckhardt, who estimates the value of ammonia at twenty cents, makes potash worth four cents per pound; the price of potashes can not serve as a guide, for they are never used for agricultural purposes. Four cents is certainly high enough for this country if it is correct for Germany.

12. *Potash may be usually neglected.*

Most concentrated manures contain very little or no potash. In guano it rarely exceeds three per cent. Superphosphate of lime can contain none of consequence. Potash can not be economically added to manufactured manures, because nearly pure potash, or even the raw material from which it is extracted, viz.: wood-ashes, has a higher commercial value for technical than for agricultural purposes. Besides, potash is not *generally* deficient in soils, and therefore farmers do not wish to pay for it as an ingredient of costly manures. It is only when a manure is professedly sold as containing much potash, that this ingredient deserves to be taken account of in its valuation.

13. *Computing the money-value of concentrated manures.*

In what immediately precedes, is contained the data for calculating *approximatively* the price that can be afforded for a high-priced manure, if we have before us the results of a reliable analysis. The actual calculation is very easy, and has been illustrated already in deducing the value of ammonia from Peruvian guano. We give here a *resumé* of the prices adopted in this report, viz.:

Insoluble phosphoric acid, per pound,	4½ cents.
Soluble " " "	12½ "
Actual, and some forms of potential ammonia,	14 "

As a further example of the calculation, here may follow the details of the valuation of a superphosphate of lime. Analysis gave the following percentages:

Actual ammonia,	2.39, say	2.4
Potential "	1.06, "	1.0
Soluble phosphoric acid,	2.56, "	2.6
Insoluble " "	22.98, "	23.0

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Multiplying the per centage of each ingredient by its estimated price, and adding together the products thus obtained, gives the value of one hundred pounds; this taken twenty times, gives us the worth of a ton of two thousand pounds.

In the case before us, the quantity of potential ammonia is so small that we may reckon it with the actual ammonia without materially influencing the result. Thus,

2.4+1.0=3.4. 3.4×14 = .48, value of ammonia in 100 lbs.
2.6×12½ = .33, value of soluble phos. acid in 100 lbs.
23×.04½=$1.03, value of insol. phosphoric acid in 100 lbs.

$1.84, total value of 100 lbs.
20

$36.80, value of one ton.

It is not claimed that this method of valuation is more than rough and approximate. Usually the price demanded is more than that obtained by calculation. In case of the superphosphate just mentioned, the selling price is $45. There is no doubt that it ought to be better for that money. The farmer must decide for himself whether he can get the same fertilizing materials more cheaply. If he can not, he may purchase such a superphosphate. For *comparing the worth of different fertilizers* this method of computation is of great value, as will be seen further on, where will be found tables giving the calculated values of all the high-priced manures that have come into my hands officially, during the last two years.

It is but just to mention here, that this method of estimating the value of fertilizers was first proposed nine years ago by Dr. J. A. Stoeckhardt, Professor of Agricultural Chemistry in the Royal Academy of Agriculture and Forestry, at Tharand, near Dresden, in Saxony, and has been adopted in principle by the chemists of the agricultural societies in Great Britain.

The estimates I made in 1856 were much lower than

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those now given. The price of manures has advanced since that time, (Peruvian guanos ten dollars per ton,) and the prices I then proposed for phosphoric acid were too small. All the estimated values in this report are founded on the prices just given.

14. *Estimation of the value of cheap manures.*

The method of valuation above described is not applicable to cheap manures, which contain but little ammonia or phosphoric acid. Their value often depends more upon the mechanical and chemical condition of their ingredients, than upon the quantity of any one. The few manufactured manures of this sort, may best be compared with some similar fertilizer of standard commercial value, viz.: stable manure, leached ashes, &c. Under the head Poudrette, examples will be given.

EXAMINATION OF COMMERCIAL MANURES.

GUANO.

1. *Peruvian Guano.* The manner in which the importation and sale of this standard fertilizer has been hitherto conducted, is such as to afford a sufficient guarantee of its genuineness. But four samples have been analyzed. All were good, as shown by the following results:

ANALYSES OF PERUVIAN GUANO.

	I.		II.		III.		IV.
Water, - -	66.32	65.18	12.63	12.70	68.00	68.70	59.46
Organic Matter, - -			52.27	51.46			
Ammonia potential, - -	5.82	5.95	16.03	15.98	17.86	18.85	16.32
" actual, - -	8.93	9.08					
Phosphoric acid, soluble in water,	4.69	3.64	15.19	14.08			
" " insoluble "	10.05	10.50					
Sand &c., insoluble in acids,	1.69	1.52	2.45	2.66			
Phosphate of lime equivalent to total phosphoric acid, av.	31.28		31.69				

I. came from the store of Wm. Kellogg, Hartford, 1856.
II. " " " Wm. B. Johnson, New Haven, 1857.
III. " " " Backus & Barstow, Norwich, 1857.
IV. " " " C. Leonard, Norwalk, 1857.

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A Peruvian guano is genuine and good, when it contains 15 per cent. of ammonia, and the same amount of phosphoric acid. The first analyses were made more complete than is necessary for judging of the quality of this manure. It is sufficient, as in the last two analyses, to ascertain the amount of loss, (water and organic matter,) by burning, and the amount of ammonia.

I believe the fact that guano may rapidly depreciate in quality by keeping, is not sufficiently thought of. In a note by Dr. Krocker, in a recent German Agricultural paper, it is stated that the loss in guano may amount to one-fourth or even one-fifth of the whole ammonia originally present, *during a single winter, especially when access of moist air is allowed.* If guano is kept dry and away from the air the loss is trifling. The ammonia of a genuine guano, although to a considerable extent "existing in possibility not in act," passes so readily into actual ammonia that it must be reckoned as such. The phosphoric acid also, in a Peruvian guano, is all in a readily soluble state, and it is not fair to make so great a distinction between the portions soluble and insoluble in water, as would be right in case of a manure which has been reduced to powder by mechanical means.

2. *Pacific Ocean Guano.*

ANALYSES.

	I.		II.	
Water,	36.24	36.10	21.70	21 44
Organic matter,			32.35	32.33
Ammonia potential,	.75	.68	.71	.58
" actual,	1.96	1 84		
Phosphoric acid, soluble in water,	2.27	2.77	23.27	24.60
" " insoluble in water,	23.68	20.91		
Sand, &c. insoluble in acid,	2.75	2.10	.51	.57
Phosphate of lime equivalent to total phosphoric acid, av.,	53.76		51.86	
Dealer's price per ton,	$50.00			
Calculated value per ton,	$34.00		$30.00	

I. From a sample sent by the importers to a dealer in Hartford, 1856.

II. From a sample sent by the dealers in New York to the agricultural store of Wm. B. Johnson, taken from the bags by this gentleman in my presence.

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The sample I. when sent into this State was advertised as nearly if not quite equal to Peruvian guano. In support of this statement the following certificate was given: "I have analyzed a sample of guano for Willet & Co., and find it to contain the following:

Phosphate of lime,	42.48
Carbonate "	2.26
Urate of Ammonia, Phosphate " &c., Carbonate "	20.54
Chloride of Sodium, " Potassium, Sulphate of Soda, &c.,	14.46
Undecomposed organic matter, feathers, &c.,	3.26
Silicious matter,	5.10
Water and loss,	12.00
	100.00

JAMES CHILTON, M. D., Chemist."

New York, Oct. 4th, 1854.

The above analysis has a very elaborate appearance, but does not instruct us as to the value of the sample analyzed by Dr. Chilton. In fact, it is eminently adapted to deceive; it gives the impression that the substance in question contains 20.5 per cent. of ammonia salts, yet without actually asserting that it contains even 1 per cent. of ammonia. Calculation shows that so far from being "nearly if not quite equal to Peruvian guano," it is not worth so much by $31 per ton, and that $16 was charged for it above its real value.

The second sample, analyzed last summer, is still poorer. In calculating its value, I have admitted it to contain the same amount of soluble phosphoric acid that was found n I. This ingredient was not determined and is probably less than thus admitted.

3. *Ichaboe Guano.* I quote the analysis and history of this manure from my investigations made in 1856, in order to show what sort of impositions have vanished from the State

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of Connecticut since a chemical scrutiny has been exercised over our fertilizers. Ten years ago a very good guano was obtained from the Ichaboe islands, containing 7 per cent. of ammonia, and 15 per cent. of phosphoric acid; worth therefore now, about $35 per ton. In 1851 the deposits were exhausted. In 1856 it was announced that there was a new arrival of this superior guano, and it was offered in New York at $40 per ton. An authentic sample was procured at the store of the agent, A. Longett, in New York city, and subjected to analysis.

It had a very unpromising appearance, and contained some feathers, together with much coarse sand and gravel. Several pounds were rubbed in a mortar to break down any soft lumps, and then were shaken on a sieve of sixteen holes to the linear inch.

89.1	per cent.	passed the sieve.
9.4	"	coarse sand and gravel, and
1.5	"	feathers remained.
100.0		

This fine portion was analyzed as usual. The results were calculated on the whole, including the 9.4 per cent. of sand and gravel, under the item "sand and insoluble matters," and the feathers under "organic matter." To the potential ammonia found in the fine guano, was added 0.2 per cent. as the greatest amount that could be yielded by the feathers.

ANALYSIS OF ICHABOE GUANO.

Water and organic matter,	17.43	18.52
Ammonia potential,	1.37	1.41
" actual,	1.53	1.51
Phosphoric acid,	6.97	7.64
Sand and matter insoluble in acid,	65.72	63.87
Phosphate of lime equivalent to total phosphoric acid, average,	15.82	
Dealer's price,	$40.	
Calculated value,	$15.	

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This is the only manure I have examined that contained 65 per cent. of sand and gravel.

BAKER'S ISLAND OR AMERICAN GUANO.

The specimen of this guano furnished me by Mr. Secretary Dyer, is of excellent mechanical condition, and gave results essentially agreeing with those of Dr. Higgins and Dr. Gale, viz:

Water, organic and vegetable matters,	11.97	11.70
Insoluble matters, sand,	.10	.17
Phosphoric acid,	38.16	38.63
Ammonia,	.68	
Phosphate of lime equivalent to phos. acid,	83.36	

Calculated value, $34.50.

It thus appears that the above is an excellent quality of phosphatic guano. So finely divided is the phosphate of lime that it must be dissolved with sufficient rapidity, in any moderately retentive soil, and if it can be had at $35 per ton, I should not hesitate to use it in preference to any superphosphate or other phosphatic manure now in our market. It can not, however, produce the remarkable effects of Peruvian guano, or of other ammoniacal manures, whose efficacy depends greatly on their ammonia.

SUPERPHOSPHATES.

The manufacture of manures bearing the general designation of *Superphosphate of Lime*, first begun in this country about five years ago, and has rapidly extended. As was to be expected, they have proved highly useful in very numerous instances, and when well prepared are to be looked to as the best means of supplying phosphoric acid to crops. There is, however, no other fertilizer which so easily admits of adulteration or fraud, as this, and none whose real value is so difficult to determine. Simple inspection or any other means short of a thorough and costly analysis, furnishes not the slightest clue to its genuineness and excellence.

There is so much confusion with regard to the different phosphates of lime, arising mainly from the great variety of

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names that have been applied to them, that perhaps it will be a service to many of the readers of this report, to set forth the chemistry of this subject in a few words. For this purpose I copy from my published articles.

Chemistry of the Phosphates of Lime.

The reader will please bear in mind, that phosphate of lime is in chemical language a *salt;* which means—in a chemical sense be it remembered—a compound of two classes of bodies, the one called *acids*, the other *bases.*

These bodies follow the universal natural laws of *combinations in definite proportions*, and the numbers expressing these proportions, are termed *equivalents.*

We can best illustrate this with a body like sulphate of lime, (plaster of Paris, gypsum,) which is a salt consisting of but one acid, and one base, and but one equivalent of each.

The acid is *sulphuric acid*, its equivalent is 40
The base is *lime*, its equivalent is 28
The salt is *sulphate of lime*, its equivalent is 68

The above becomes intelligible when it is considered that in every specimen of pure gypsum that has ever been examined, the lime and sulphuric acid are present in exactly the proportions indicated by the numbers 40 and 28, and it has been proved a hundred times, that when lime and sulphuric acid are brought together in such circumstances that they can unite, they always do unite in the above proportions. This is what is meant by the law of definite proportions.

The word equivalent simply means that 28 parts by weight, grains, pounds, &c. of lime, are equal to, or go as far, in making a salt, as 40 grains, pounds, &c. of sulphuric acid.

Unlike sulphuric acid, (one equivalent of which usually combines with but one equivalent of a base,)one equivalent of phosphoric acid usually unites with *three* equivalents of base; and these three equivalents may be all of one base, or two of one base and one of another, or, finally, may be all of different bases. What is most remarkable is, that *water* may act as a base; but it is not customary to allow the water to figure in the name of the compound; and in this way, the

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three phosphates that contain lime and water as the basic ingredients, are all called phosphates of lime.—They are distinguished from each other by a variety of prefixes, unfortunately numerous, and none of which are strictly in accordance with the general principles that regulate chemical name-making.

The constitution of these three phosphates of lime may be represented as follows:

The first is phosphoric acid, (72) lime, (28) lime, (28) lime, (28.)
The second is phosphoric acid, (72) lime, (28) lime, (28) water, (9.)
The third is phosphoric acid, (72) lime, (28) water, (9) water, (9.)

The equivalents are given with each ingredient, and by adding them together we find the equivalent of each phosphate.

The 1st, 72 of acid, and 84 of base, is 156.
The 2d, 72 " " and 65 " " is 137.
The 3d, 72 " " and 46 " " is 118.

What is the use of these equivalents? may be asked. In 156 parts (ozs. or lbs.) of the 1st are 75 parts, (ozs. or lbs.) of phosphoric acid: in 137 parts of the 2d, and in 118 parts of the 3d, is the same quantity. A simple operation of "rule of three," will reduce these quantities to *percents*, and thus we may more readily compare their composition.

Percent composition of the phosphates of lime.

	1	2	3
Phosphoric acid, -	46.15	52.55	61.02
Lime, - - -	53.85	40.88	23.73
Water, - - -		6.57	15.25
	100.00	100.00	100.00

With regard to the names of these phosphates, I have already hinted that much confusion exists.

To No. 1 have been applied the names, neutral, basic, ordinary, tri-, and bone-phosphate.—To No. 2, bi-, di-, and neutral phosphate. To No. 3, mono-, bi-, acid, and superphosphate.

No. 1, we may designate as *bone-phosphate of lime*, because it is the chief earthy ingredient of bones, or at any

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rate it remains when bones are burned, and constitutes the larger share of bone-ashes. It is almost absolutely insoluble in pure water; but dissolves perceptibly in water containing in solution salts of ammonia, or common salt, or carbonic acid. It is also the principal ingredient of the so-called mineral phosphates—of *Apatite*, that occurs abundantly in the iron mines of northern N. York, of the *Eupyrchroite* of Crown Point, and the *Phosphorite* of Estramadura in Spain and of Hurdstown, New Jersey. In the fossil bones, the so-called *Coprolites* of certain districts in England, and in the phosphatic nodules of the silurian rocks of Canada, a variable quantity of bone-phosphate of lime is contained. The phosphoric acid of all the genuine guanos exists mostly in combination with lime as bone-phosphate.

No. 2, most commonly called the *neutral phosphate of lime*, deserves notice as occurring mixed with bone phosphate in the Columbian guano, and in the similar phosphatic guanos recently imported by the Philadelphia Guano Company. It will be noticed further on.

The agricultural value of phosphoric acid, and of the phosphates of lime is sufficiently understood. To them, bones mainly owe their efficacy as a fertilizer. It is well known that, although bones are highly useful when applied to the soil in a coarsely-broken state, they are far more valuable if reduced to small fragments, or better still, if ground to dust. This is because nothing can enter the plant in a solid form. All that a crop absorbs through its roots must be dissolved in the water of the soil. The bone-phosphate of lime is only slightly soluble in water, and of course very slowly presented to the plant. The more finely it is divided or pulverized, the more surface it exposes to the action of water and the more rapidly it dissolves. By grinding it is only possible to reduce bones to a gritty dust, fine perhaps to the unaided eye, but still coarse, when seen under the microscope. Chemistry furnishes a cheap means of extending the division to an astonishing degree, and enabling us to make bone-manure perfect both in its mechanical and chemical qualities.

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This brings us to No. 3, or *Superphosphate of Lime*, which is the characteristic ingredient of the genuine commercial article known by that name, in which however, it is largely mixed with other substances. Its peculiarity is, ready solubility in water. It may be prepared from either No. 1, or No. 2, by adding to these phosphoric acid, or by removing lime, in presence of water. In practice lime is removed.

If to 156 parts (one equivalent) of bone-phosphate of lime, we add 80 parts (two equivalents) of sulphuric acid,* with sufficient water to admit of an intimate and perfect mixture, then the 80 parts of sulphuric acid take 56 parts (two equivalents) of lime and form sulphate of lime, while the phosphoric acid retains 28 parts (one equivalent) of lime, and 18 parts (two equivalents) of water replace the lime removed by the sulphuric acid, so that there results 136 parts of sulphate of lime, and 118 parts of superphosphate.

The manufacture of good superphosphate of lime, consists essentially in subjecting some form of bone-phosphate of lime—it may be fresh or burned bones, mineral-phosphates or phosphatic guanos—to the action of sulphuric acid. The product of such treatment contains sulphate of lime, superphosphate of lime, and still a greater or less share of undecomposed bone-phosphate, together with some free sulphuric acid, because the materials can not be brought into such thorough contact as to ensure complete action.

The reader can easily perform a simple experiment that illustrates the change which superphosphate of lime, or any soluble phosphate, always undergoes when brought into the soil. Stir a spoonful of superphosphate in a tumbler of water; let it settle and then pour off the clear liquid into another tumbler, (if no superphosphate is at hand, use instead of the liquid just mentioned, strong vinegar in which some bits of bones have stood for a few days.) Now stir a few lumps of salæratus, or soda, in water, and pour it gradually into the first liquid. Immediately a white cloud, or *precipitate*, as the chemist calls it, is formed; at the same

Oil of Vitriol is a compound of about 75 per cent. of sulphuric acid, with 25 per cent of water.

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time the liquid will foam like soda water, from the escape of carbonic acid gas.

This white cloud is *precipitated bone-phosphate of lime*, and does not essentially differ from the original bone-phosphate, except that it is inconceivably finer than can be obtained by any mechanical means. The particles of the finest bone-dust will not average smaller than one hundredth of an inch, while those of this precipitated phosphate are not more than one twenty-thousandth of an inch in diameter.*

Since the particles of the precipitated phosphate are so very much smaller than those of the finest bone dust, we can understand that their action as a manure would be correspondingly more rapid.

In fact, the application of superphosphate to the soil, is always speedily followed by the formation of this precipitated phosphate; the iron, lime, potash, &c., of the soil, having the same effect as that produced by the salæratus or soda in the above experiment.

The advantage of dissolving, or rather acting upon bones with sulphuric acid, is then, not to furnish the plant with a new food, but to present an old dish in a new shape, more readily accessible to the plant. In addition to the advantage of *sub-division* thus presented, another, not less important is secured; viz: *distribution*. This may be illustrated as follows: If one part of a quantity of superphosphate be mixed with chalk, lime, or ashes before use, while another portion is directly applied, in both cases precipitated phosphate will be furnished to the soil. The *sub-division* will be equal, but the *distribution* will be unlike. In the first case, the ready-formed phosphate is very imperfectly mixed with the soil, by the mechanical operations of tillage. In the latter instance, if the superphosphate be scattered on the surface, it is unaffected until a rain falls upon it. Then the superphosphate dissolves, and trickles or soaks down into the soil, meeting here with a particle of lime or potash, and depositing a particle of bone-phosphate, traveling on a little way, and depos-

*Ogden N. Rood, Esq., of New Haven, has had the kindness to measure them under the microscope at my request.

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iting another, and so filling the whole soil to a certain depth with the precious fertilizer.

It seems then that it is important not only that the superphosphate be *made*, but that it *remain* such, until strewn on the soil.

I would suggest that the simplest, and for agricultural purposes, the most accurate way of designating the phosphates of lime, and all other phosphates, is to divide them into two classes, *soluble* and *insoluble*, and always to base calculations on the *phosphoric acid* they contain, because it, and not lime or water, is the valuable ingredient of them all. Accordingly, in all my analyses, I have invariably stated separately the amount of phosphoric acid soluble in water and the quantity insoluble in that vehicle of vegetable nutriment.

For the sake of comparison with the common standards, the quantity of bone phosphate equivalent or corresponding to the phosphoric acid, has been included in the analytical tables. The amount of bone phosphate of lime is obtained by multiplying the phosphoric acid by 13 and dividing the product by 6.

What ought to be accepted as the standard of composition in a commercial superphosphate?

The answer to this question is: as good an article as can be manufactured on the large scale.

There are two classes of good superphosphates. One is represented by the following analysis made by me in 1852, on what then was Mapes' improved superphosphate:

Ammonia, - - -	2.78
Soluble phosphoric acid, -	10.65
Insoluble " " - -	10.17

Here we have 21 per cent. of phosphoric acid, one-half of which is soluble in water. The proportion of soluble phosphoric acid is sufficiently large for a quick and energetic action, while the still insoluble phosphoric acid renders its effect more lasting. The 3 per cent. of ammonia is a constituent which makes the manure more generally useful

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than it would be otherwise. Such a manure is worth as follows:

Ammonia,	3 per cent	×14 = $0.42	×20 = $8.40
Soluble phos. acid,	11 "	" ×12½ = 1.37½	×20 = $27.50
Insoluble "	10 "	" × 4½ = 0.45	×20 = $9.00
Total value, - - - -			$44.90

This sample is the only one of its class that has hitherto fallen into my hands.

The other kind is, strictly speaking, a superphosphate, containing but little insoluble phosphoric acid, and no ammonia. It is precisely what it is called, and is intended to be an adjunct to other fertilizers. The following statement of composition and worth—the average of four best English samples, according to Prof. Way's analyses—gives an idea of this manure:

Soluble phosphoric acid,	13.23,	worth per ton,	$33.20
Insoluble " "	3.07,	" "	$2.80
Total value, - - - -			$36.00

The only specimen of such a superphosphate that I have analyzed, is that made by B. M. Rhodes & Co., of Baltimore, Md.

Besides these two classes of superphosphates, there is another, which indeed includes many good manures, but they hardly deserve to be called superphosphates, as they contain but two or three per cent. of soluble phosphoric acid. They *are*, however, called superphosphates, but we can not admit that they are any thing better than second-rate articles.

In stating the composition and value of the superphosphates I have examined, I shall class together those coming from the same manufacturer, or otherwise such as most nearly agree in composition. This plan will enable us to trace the improvement or deterioration in the manufacture, when numerous samples have been examined, and, otherwise, will facilitate comparison.

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Mapes' Superphosphate—Newark, New Jersey.

The best superphosphate that has ever come under my examination, was the one that is first given in the table below. The sample analyzed in 1856 had but half the value of the first; and in 1857 the three specimens analyzed are worth but one-third as much. It is clear that this is a brand not to be depended upon, and the material that has come into Connecticut the past year is hardly worth a long transportation.

	Mapes' Improved.		Mapes' Nitrogenized.				
	I. 1852.	II. 1857.	III. 1856.			IV. 1857.	V. 1857.
Water,	4.54	7.90	43.24	42.72	41.68	11.15	21.61
Org'ic and vol. matter,	22.96	15.04				18.65	26.29
Sand and matters inso. in acids,	1.48	13.90	6.20	6.57	7.76	16.91	4.18
Lime,		28.08				23.55	
Sulphuric acid,							
Carbonic acid,	none	6.54		none		7.52	2.38
Phos. acid soluble,	10.65	none	1.12	1.07	0.58	none	none
" " insoluble,	10.17	13.56–13.20	9.18	9.11	10.12	10.19–9.60	9.85
Ammonia, actual,	2.78	1.16	1.54		1.48	2.28	1.16
" potential,			2.11		2 16		
Phos. lime equivalent to phos. acid,	45.11	28.99	av. 22.44			21.43	21.34
Calculated value,	$44.	$15.		$21.		$14.50	$12.50

I. Furnished by Edwin Hoyt, Esq., New Canaan, Ct.

II. From store of Backus & Barstow, Norwich, Ct.

III. From a Hartford dealer.

IV. From store of Backus & Barstow, Norwich, Ct., average from many bags.

V. From C. Leonard's store, Norwalk, Ct.

Mechanical state mostly good.

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Deburg's Superphosphate—Williamsburg, Brooklyn, L. I.

The sample analyzed in 1856 was of very fair quality. The last year it is seen, however, that there is a serious falling off.

	Deburg's Superphosphate.				
	I. 1852.		II. 1856.		III. 1857.
Water, organic and volatile matters,	27.65	26.24	24.57	21.23	25.20
Sand, and matters insoluble in acids,	8.45	8.80	6.89	7.37	
Phosphoric acid, soluble in water,	5.96		2.56	2.46	.51
" " insoluble "	14.37	15.78	22.98	22.53	17.61
Ammonia, actual,	1.38		2.39	2.25	1.44
" potential,			1.06	1.24	
Phos. of lime equivalent to phos. acid,	av. 45.56		54.74		39.26
Calculated value,	$32.		$36.25		$21.50

I. From the agricultural store, New Haven, Ct.

II. From the factory—taken from a heap in my presence.

III. From Messrs. Backus & Barstow, Norwich—sample made up by taking a spoonful from each bag of a large lot.

Mechanical condition, good.

Coe's Superphosphate—Middletown, Ct.

This fertilizer, manufactured in Connecticut, has been subjected to pretty severe scrutiny, and has maintained a good degree of uniformity in composition. The variations are perhaps not greater than are necessarily incidental to the manufacture.

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	I. 1854.		II. 1856.		III. 1856.		IV. 1856.		V. 1857.	VI. 1857.		VII. 1857.	
Water, organic and volatile matters,	32.70	31.67	35.36	35.19	40.27	40.37	37.53	38.02	37.55	34.90	35.30	29.50	29.33
Sand and matters insoluble in acids,	5.97	6.31	2.94	2.60	3.36	2.94	3.15	3.37		4.50		3.77	3.62
Phosphoric acid soluble in water,	3.37	3.47	3.90	4.19	4.35	3.75	3.59	3.84	2.91	2.53	2.69	2.17	2.19
" " insoluble in water,	16.29	16.80	19.06	18.42	16.22	16.33	17.59	17.84	18.08	16.83	16.48	21.11	20.77
Ammonia, actual,	2.12	2.07	1.57	1.77	1.65	1.66	1.50	1.66	3.30	2.69	2.89	3.08	3.14
" potential,	1.47	1.52	1.58	1.60	1.28	.95	1.55	1.38					
Phosphate of lime equivalent to phosphoric acid,	av. 44.33		49.35		44.35		46.47		45.48	41.73		50.09	
Calculated value,	$33.75		$36.25		$33		$41		$33	$35		$33.25	

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I., II., III., IV. From the agricultural stores of New Haven and Hartford.

V. From store of Backus and Barstow, Norwich, Ct.

VI. and VII. From Henry Hull, Esq., Naugatuck, Ct.

Mechanical condition, uniformly good.

Coe & Company's Superphosphates—Boston, Mass.

This manure, furnished by Henry Hull, Esq., of Naugatuck, Ct., is of a grayish white color, and is in good mechanical condition. Its analysis resulted as follows:

Water, organic and volatile matters,	26.70	26.19
Sand and insoluble "	7.15	6.79
Soluble phosphoric acid,		none.
Insoluble " "	19.98	20.27
Potential ammonia,	3.06	
Phosphate of lime equivalent to phos. acid, av.,	43.59	

Calculated value, $26.50.

This manure is a misnomer. It is a good bone-manure at $30 per ton.

Lloyd's Superphosphate—Providence, R. I.

This fertilizer I believe enjoys a good reputation as compared with other similar manures. Its texture is fine. It is apparently made from unburned bones. Its composition is as follows:

Water, organic and volatile matters,	42.15	42.48
Sand and insoluble "	7.00	5.20
Lime,	20.61	19.50
Sulphuric acid,	11.80	
Soluble phosphoric acid,	5.53	15.50
Insoluble " "	11.41	
Potential ammonia,	2.48	2.55
Phosphate of lime, equivalent to phos. acid, av.,	35.14	

Calculated value, $31.

The proportion of soluble phosphoric acid is considerably above the average. The total amount is however small.

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Rhodes' Superphosphate—Baltimore, Md.

In my address before the State Agricultural Society a year ago, I made mention of Rhodes' superphosphate to illustrate a common fault in the analysis of commercial manures, viz: calculating or inferring a result from insufficient grounds, instead of actually deciding the matter experimentally. An analysis of this manure was quoted from the proprietor's circular, wherein the total amount of phosphoric acid is estimated, and from the quantity of sulphuric acid present is *inferred* the proportion of soluble phosphoric acid. I stated that doubtless a fuller analysis would demonstrate that the amount of the soluble phosphoric acid was considerably smaller than represented.

The sample with which I have been furnished by Mr. Dyer gave the following results, in three analyses:

				Average.
Water, organic and volatile matters,	27.60	27.73	26.60	27 31
Insoluble matters, sand, &c.,	3.22	2.47	10.05	5.24
Lime,	20.13	20.25		20.19
Soluble phosphoric acid,	12.13	11.65	11.03	11.60
Insoluble " "	3.91	3.77	3.94	3.87
Total " "	16.04	15.42	14.97	15.47
Potential ammonia,	.24	.24		.24
Phosphate of lime, equivalent to phosphoric acid,				32.80

Calculated value, $32.25.

The variation in the analytical results is due to the difficulty of averaging the manure. When rubbed in a mortar it becomes slightly pasty and can not be very thoroughly intermixed.

The mechanical condition of this superphosphate is unexceptionable.

In a new edition of their circular, Messrs. Rhodes & Co. publish analyses and report made by Drs. Higgins and Bickell, according to which this superphosphate contained, in our samples respectively, the following amounts of phosphoric acid:

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	1	2	3	4	5
Soluble phosphoric acid,	14.32	16.01	17.73	17.56	11.60
Insoluble, " "	none.	1.49	none.	1.22	3.87
Total,	14.32	17.49	17.73	18.78	15.47

4 is the statement made in [illegible]ir circular which I read last year before this Society. 5 is the average result of my own actual determinations. It is seen that the statement in my address is confirmed, in case of the sample I analyzed. At the same time the difference is not seriously great.

In the analyses of Messrs. Higgins and Bickell, several per cent of soda are given. I have not taken the trouble to estimate this ingredient, which has no significance in case of an expensive fertilizer.

OTHER SUPERPHOSPHATES.

	Wallingford, Ct.		Buck's bone superphosphate, Hartford, Ct.	
	I. 1857.		II. 1857.	
Water, organic and volatile matters,	48.30	48.05	51.59	51.46
Sand and insoluble "	8.98	8.78	.60	.98
Lime,			20.53	20.36
Sulphuric acid,	10.67			
Soluble phosphoric acid,	2.02	12.00	14.25	14.17
Insoluble " "	9.72			
Potential ammonia,	7.35	6.92	2.50	2.54
Phosphate of lime, equivalent to phosphoric acid,	21.34		30.79	
Calculated value,	$34.50		$31.00	

I. This was furnished me by Mr. Parmelee of New Haven. It contains much potential ammonia in the form of gelatine, but the material is so poorly pulverized, consisting of coarsely-crushed bones, that its action must be slow. A large reduction must therefore be made from the calculated price.

II. Is in good form. The sample furnished was small, so that I was unable to determine the soluble phosphoric acid.

Columbian or Rock Guano.

This substance, which has also been called a native superphosphate of lime, is reported to come from certain islands in the Caribbean sea. It occurs in hard stony masses,

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which vary much in structure, color and composition. The rock that is richest in phosphoric acid is concretionary in structure. Externally its color is gray or white, internally brown or black. This rock, though quite tough under the hammer, may be readily reduced to a fine powder, having a yellowish or brownish-gray color, and in this form it now appears in the market. It has been supposed that this guano is formed from the excrements of gulls, pelicans, and cormorants, which are the sole inhabitants of the islands where it is found. These islands are a hundred or more in number, and it is said that the guano exists there in enormous quantities. The rock guano consists essentially of phosphates, but is more or less intermixed wth other mineral matters. It contains but a trifling amount of ammonia, or of ammonia-yielding substances.

The composition is seen from the following table:

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ANALYSES OF COLUMBIAN GUANO.

	I.	II.	III.	IV.	V.	VI.	VII.	VIII.	IX.	X.
Water and organic matter,	8.74	8.62	8.65	11.75	18.09	13.03		22.87	12.17	10.75
Sand and matter insoluble in acid,	5.86	5.93	6.51	9.05	2.66	0.55		13.18	52.07	0.02
Lime,	36.04	36.00	35.95	28.85	none.	40.60	39.34	2.66	0.37	39.01
Magnesia,	1.84	1.82	1.83			2.93	1.64		0.27	0.22
Potash,	1.57	1.19	1.38							
Soda,	.09	.36	.23			3.23				
Oxyd of iron,	1.36	1.36	1.36		much.			12.41	1.55	0.11
Alumina,					much.			16.24	13.03	
Sulphuric acid,	4.06	4.13	4.10			1.93	4.00	1.07		7.08
Phosphoric "	40.09	39.45	40.40	33.50	34.69	37.15	42.98	31.66	19.47	43.50
Carbonic, "										
Chlorine,						.44				
	99.65	98.86	100.41							100.69
Ammonia,	.28	.28								
Phosphoric acid soluble in water,	.85	.70	*2.67			.85	.81			
Phosphate of lime equivalent to phosphoric acid,	86.86	85.47	87.53	72.68	75.18	80.49	93.16	68.59	42.18	94.25
Calculated value,	$36.00	$36.00	$36.00	$30.00	$31.00	$33.50	$38.70	$28.50	$17.50	$39.00

* Dissolved by long-continued washing with hot water.

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I. and II., ground guano, sent to editors of Homestead, by the proprietors of the guano.

III., unground guano, sent to editors of Homestead, by the proprietors of the guano.

IV., from a gentleman—a purchaser—near Philadelphia, Pennsylvania.

V., from the store of C. Leonard, Norwalk.

The above five analyses were made under my direction.

VI., VII., VIII. and IX., are quoted from a paper by Wm. F. Taylor, of Philadelphia, in the Proceedings of the *Philadelphia Academy of Natural Sciences*, March, 1857. The specimens were rock-samples, furnished by Dr. D. Luther, President of the Philadelphia Guano Company.

X., ground commercial sample; analysis by Drs. Higgins & Bickell.

Richness in phosphoric acid. This, the only important ingredient, ranges in the majority of the above analyses at about forty per cent. In analyses V., IV. and VIII., it falls 5, 6, and 8 per cent. lower. In case of IX., we have but 20 per cent. of phosphoric acid. Analyses VIII. and IX. were made on a material quite different in external appearance from the rock furnishing the other samples. The Philadelphia Guano Company sent me specimens of these inferior kinds a year or more ago. They appear to be, and actually are, largely intermixed with sand, though when pulverized they can scarcely be distinguished by the eye from the best sorts. I had begun analyses of the specimens put into my possession, but their completion was rendered unnecessary by the appearance of Mr. Taylor's extended investigation. They contain little or no lime, and the phosphoric acid is combined with oxyd of iron or alumina.

The best qualities of Columbian guano form the richest known source of large quantities of phosphoric acid, if, indeed, there are large quantities of the best quality. But the above analyses show that even the commercial article found in the agricultural stores, varies considerably in value, while some of the rock samples are worth but half as much as the

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best qualities; and, therefore, bone-black or bone-ash, is equal in this respect to the *average* of the best samples hitherto analyzed.

Solubility of the phosphoric acid. The circulars of the Philadelphia Guano Company give an analysis of this guano, by Dr. Chilton of New York, according to which it contains 13.14 per cent. of *soluble phosphate of lime.* J. C. Booth reports therein, that Columbian guano contains 6.05 per cent. of *free phosphoric acid*, or 32.27 per cent. of *soluble phosphate of lime.* Dr. David Stewart, chemist to the State Agricultural Society of Maryland, in an analysis he furnishes, makes it to contain 5.23 per cent. of soluble phosphoric acid. Dr. A. A. Hayes, of Boston, in his analyses, states that it contains 11.4 per cent. of phosphoric acid more than is requisite to form bone-phosphate of lime. He says it is in fact a kind of natural *bi-phosphate of lime.* J. C. Booth, in analyzing another sample, found 9.6 *per cent.* of *free* phosphoric acid. On the strength of these statements, the Columbian guano has been called a *native superphosphate of lime.* It is easy to understand how some of the gentlemen above-named have committed the inadvertency of asserting that the substance in question contains free phosphoric acid, or superphosphate of lime. The error is more to be attributed to the looseness of language than to any other cause.

The fact is, that some of these specimens of Columbian guano contain, in addition to the ordinary *bone-phosphate of lime*, the composition of which is—

phosphoric acid, lime, lime, lime—

more or less of the generally called *neutral phosphate*, which is—

phosphoric acid, lime, lime, water.

There is in it, however, no *superphosphate of lime*, which is—

phosphoric acid, lime, water, water.*

This *neutral phosphate* is slightly soluble in water, and is

* See that part of this report relative to superphosphate of lime.

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slowly decomposed by boiling water. Thus, in analyses I., II, VI. and VII., about 0.8 per cent. of phosphoric acid was dissolved; and in III., by long continued washing with hot water, 2.67 per cent was made soluble. This neutral phosphate is decomposed by carbonic acid, and hence is doubtless readily available to vegetation.

As concerns the value of those varieties which consist chiefly of phosphates of iron, and alumina, V., VIII. and IX., I am unable to state whether or not they are capable of readily yielding their phosphoric acid to vegetation. As artificially prepared, these phosphates are totally insoluble in pure water, and are not easily decomposable. In fact, nearly all the knowledge we have of these compounds, leads to the idea that they are unadapted to feed the growing plant. Some writers have not hesitated to declare them quite valueless for agricultural purposes. The only satisfactory evidence, however, must be brought from direct trials with them in the soil, for bodies are soluble there, which ordinarily are accepted as the types of insolubility.

The Prince Salm Horstmar, of Germany, who has devoted much time and means, to studies having a direct bearing on agriculture, found, indeed, that phosphate of iron is actually assimilated by vegetation; but we do not yet know whether it may be appropriated with such ease as to adapt it for a fertilizer.

I had hoped to institute some experiments with a view to determine this point, but have not found the opportunity.

Poudrette.

Since chemistry has explained in such a beautiful manner the action of manures, and made evident what enormous quantities of fertilizing material are daily lost to agriculture, the question of economizing the effete matters which accumulate in large towns, has excited deep interest.

The subject is not merely one of agricultural importance, but has extensive bearings upon the health of densely populated countries. Those substances which most easily pass into putrefaction, and then become in the highest degree

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disagreeable and dangerous to the inhabitants of cities, possess, as fertilizers, the greatest value to the farmer.

Not many years since it was common to find large cities filled with filth, which had accumulated during generations, with no other means of removal than the natural agencies of decay, or rains might furnish. Not a few of the fearful plagues that in former centuries have ravaged the capitals of the old world, trace their origin most unequivocally, to the disgusting negligence in these matters, then prevalent.

It is therefore fortunate for a people, when the refuse of the town, instead of poisoning the atmosphere and generating terrible pestilences, can be transported to the fields of the country, and under the wonderful transmutations of agriculture be converted into healthful food.

Numerous efforts have been made with a view to produce a good manure from the night-soil of cities, but so far as I can learn, with very limited success, if the quality of the product hitherto brought into market is a proper criterion for judgment.

Practice and science concur in attributing to human excrements very high fertilizing properties. It is well-known that the richness of manure depends upon the richness of the food that supports the animal producing the manure. It is equally well-known that, on the whole, no animal is so well fed as man.

Notwithstanding these facts the manures that have been prepared from night-soil, and brought into commerce under the names *Poudrette*, *Ta-Feu*, *&c.*, are not remarkable for their value. It is true that good manures are made, but they are by no means so concentrated as reasonably to command a high price, or warrant much outlay for their transportation.

Some of the causes that conspire to this result, become evident from the following considerations:

The night-soil as usually collected has already lost the chief part of its original value. Unless special arrangements are made to prevent the escape of urine from the vaults of privies, the greater part of it soaks away directly into

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the adjoining ground and is lost. Now the value of the urine voided by an adult man during one year, for example, is much greater than that of the corresponding solid excrements. It contains, according to Stoeckhardt, (Chem. Field Lectures, page 72):

Double the quantity of phosphoric acid.

Four times as much nitrogen.

Six times as much alkalies.

Not only is the urine itself lost to a considerable degree, but in the usual construction of privies it falls upon the solid excrements and washes away a considerable share of their soluble and active matters, so that the contents of a vault, even though quite fresh, are of very inferior value.

Again, the vaults are only emptied at considerable intervals, between which, especially in warm weather, a rapid putrefaction of their contents takes place, by which a good share of the nitrogen that remains after the urine has leached out the mass, escapes into the air in the shape of ammonia compounds, and is lost. After the night-soil has passed these two stages of deterioration, it is usually no longer suitable for the preparation of a concentrated manure, even supposing it free from foreign matters.

But again, considerable quantities of worthless matter, coal-ashes, &c., find their way into the vaults, which are, indeed, often an *omnium gatherum* for all sorts of refuse. Often the slops of the kitchen run into them, and the rains flow through them on their way to the deeper earth, washing in sand and dirt, and washing out the valuable ingredients.

From these facts, it is seen that the raw material used in making poudrette and tafeu, must be of variable, and for the most part, of inferior value.

The process of manufacturing *ought* to consist merely in converting the night-soil into a shape convenient for transportation, and if possible concentrating the valuable ingredients. The manure is made of the *best quality* by treating the night-soil with sulphuric acid and then rapidly drying by artificial heat. The acid prevents the loss of ammonia, while the drying removes the worthless water, and brings

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the mass into a suitable state for handling. The manure is manufactured *most cheaply* by mixing it with some drying or absorbent material, as peat or swamp muck, or the charcoal of the same, and drying by exposure to the air. The first method is expensive and raises the cost of the product far above its value, unless the raw material is of unusually good quality. The second process dilutes the night-soil with matters which are indeed very useful, but must be sold very cheaply.

According to Nesbit's careful calculation, fresh human excrements, solid and liquid together, when dried completely, yield a material having the following per centage composition in round numbers:

Ammonia, (a considerable share not actual but potential,)	20
Other organic matters,	62
Phosphoric acid,	3
Other inorganic matters,	25
	100

The value of this, estimated by the prices adopted in the present report, is $60, and it therefore approaches Peruvian guano in commercial worth.

How effectually the causes I have enumerated deteriorate the value of night-soil before it is converted into a portable manure, is seen by the following analyses:

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ANALYZED BY	Poudrette. Sullivan. I.	Poudrette from Montfaucon. Souberain. II.	Poudrette. From De. Bercy. Souberain. III.	Saxon Guano, Dresden. Muller, IV.	Saxon Guano, Dresden. Schéven. V.	Poudrette. Liebig Man. Co. East Hartford, Ct. Seely. VI.		Poudrette. Lodi Manufacturing Company, New York City. New Haven ag. store. Twining. VII.	Norwich. Backus & Barstow. Twining. VIII.	Norwalk, C T. Leonard. Twining. IX.	Yard-Manure well rotted and dried. Dr. Voelcker. X.	Box Manure, mixed dung, and litter, fresh. Prof. Way. XI.	Yard-Manure, mixed dung of horses, bullocks, and pigs. Boussingault. XII.	Horse-Manure well rotted. Richardson. XIII.
Water,	28.41	28.00	13.60	19.5	18.42	39.97		32.52	15.60	25.62				
Organic and volatile matter,	64.08	29.00	24.10	20.8	11.25	20.57	60.01	14.88	18.40	14.80	67.24			
Sand &c., insoluble in acids,	.36	28.00	43.20	43.0	56.08	29.95	30.37	42.64			4.11			
Oxyd of iron,				5.6				2.43			2.74			
Alumina,								3.25						
Lime,				2.7				1.05			8.09			
Magnesia,				0.7				trace.			.56			
Phosphoric acid,				2.5		.87	1.05	1.06	1.19	1.36	1.83	.30	.20	.81
Sulphuric acid,				3.1				.79			.53			
Potash and soda,				1.5				1.38			2.35			
Soluble silica,											6.82			
Carbonic acid,				0.6							5.73			
								100.00			100.00			
Ammonia from organic matters,	1.54	1.78	1.98	2.6	1.64	1.23	1.39	1.15	1.19	1.15	3.00	.56	.48	.75

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The analyses I.–V. are quoted from foreign journals. Analyses VI.–IX. were made in Yale Laboratory. I. represents the composition of a mixture of two parts of turf-coal with one part of night soil, and shows how poor an article is procured when it is known what is the process of making. It will be seen that although no dirt or sand was mixed with the night soil, yet the amount of fertilizing matter is very small. The further details of the original analysis show that besides the ingredients stated above, there was but 5.3 per cent. of valuable matter in the poudrette, and this was mostly sulphate of lime.

II. and III. are analyses of poudrette made in France, the country where this manufacture originated, and from whose language the name is derived. There is every reason to suppose that these specimens were prepared in the best manner; blood and butchers' offal were employed in the latter.

IV. and V. show the composition of a poudrette made at Dresden in Saxony, the addition to which of some sulphate of ammonia, is claimed by *Dr. Abendroth*, the chemist who superintends its manufacture, to entitle it to the name of a guano. It does not differ materially in value from the French poudrette. I have before me a pamphlet setting forth the principles that, it is professed, guide the production of this manure, and have full faith that the business is managed as well as can be. The price of the article is about $1.00 per cwt. Dr. Mueller, chemist to the Agricultural Experiment Station at Chemnitz, in Saxony, the author of one of the above analyses, remarks concerning it, as follows: "In an experimental trial made last year (1855) at the Chemnitz Agricultural Experiment Station, with the purpose of testing the effect of various manures, the *same amount of money* being invested in each application, it resulted that the Saxon guano had the least effect of all. This led me to make the accompanying analysis. A glance at the figures is enough, without any actual trial, to show that no great effect can be expected from such a manure. From the *quantity* of valuable matters present, six *cwt.* of this might be considered equivalent to one *cwt.* of Peruvian guano; but

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when the *form* is taken into account—nearly one half of the ammonia being inert, and the phosphoric acid existing as almost insoluble phosphate of iron—its value must be estimated lower. The other ingredients are of less importance, and, at any rate, may be procured more cheaply from other sources."

VI. represents the composition of a poudrette manufactured by the so-called *Liebig Manufacturing Co.* at East Hartford, Conn. It does not claim to be a concentrated fertilizer, its price being but $1.50 per barrel when sold in quantity. It is not just then to estimate its value from the ammonia and phosphoric acid alone, for the cheaper a manure is, the more must its less valuable ingredients figure in estimating its worth.

These have not been separately estimated, for the reason that no calculation of any permanent value, could be founded on one analysis of a material that is so likely to vary in these ingredients, especially where it is sold by bulk. This being a kind of manure that is applied in large quantity, and the ingredients being in proportions more nearly approaching the demands of the growing plant, than is the case with concentrated fertilizers, whose true function is to make up special deficiencies in the soil, we must appeal to practice for precise information as to its worth. Again, it has but a local value, for being bulky, it can not re-pay much expense in transportation, and therefore should not be judged by the general principles that commend or condemn a superphosphate or guano; but by the particular wants of the soil in the neighborhood where it is sold, and the local circumstances that there affect the price of other cheap fertilizers.

VII. VIII. and IX. are analyses of the Lodi Co's Poudrette, prepared from the night soil of New York city. The extravagant and persistent claims that have been set up in favor of this manure, led to a complete investigation of its merits. To insure a fair examination, general analyses were made on three samples, and one of them was submitted to a full and minute analysis. The samples differed much in their degree of dryness. VII. fresh from New York, was

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quite moist, almost wet. VIII. was moist, but still powdery. IX. was dry to the feel.

In all these commercial poudrettes we observe a very large proportion of valueless *water* and *sand*, viz., 60 to 75 per cent.

The quantity of organic matters averages at about 20 per cent. This yields but 1.2 per cent of ammonia. There remains but 4.5 per cent. of other fertilizing substances. The analyses, X.–XIII. enable us to compare these poudrettes with common stable or yard manure. Analysis X. represents the composition of *dried* yard manure. Fresh yard manure contains from 65 to 75 per cent. of water, so that we must take but one-third to one-fourth of the numbers there given. *We see then that the best of these poudrettes does not exceed dried yard manure in value, or is worth but three to four times as much as its weight of common yard manure*, if we judge alone from chemical composition.

But the question of manurial value is by no means a purely chemical one. As already insisted upon, the *form* as well as the kind and quality of matter, must be duly considered. In a concentrated fertilizer the assumption that the ingredients are in a state to be readily available to the plant, is the indispensable basis of calculations founded on composition. In discussing the value of cheap manures, this matter becomes of paramount importance. In these respects the Liebig Manufacturing Co's Poudrette is unexceptionable. It is free from coarse refuse, and having undergone fermentation, it would seem able to produce an immediate and rapid effect. It can be applied with seeds by a drill, does not impregnate the soil with the germs of noxious weeds, and has other obvious advantages over barn-yard or stable-manure. From a chemical point of view we may assume it to be worth as much as three times its weight of stable-manure. Farmers must decide for themselves whether it is economical for their use. For some it will not be; for many others who command city prices for their produce, and are obliged to transport all their manure some miles, it can hardly fail to be highly valuable. Its modest price is

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certainly in its favor, and I am credibly informed that it is in good repute among those who have used it.

The Lodi Co's Poudrette can not be recommended. The organic matter of the East Hartford Poudrette is a fermented peat or muck, is highly divided, and absorbent of moisture and ammonia. The Lodi poudrette contains nearly as much organic matter, but it mostly consists of sticks and the dust of hard coal. In fact, all manner of city refuse, old nails, apple-seeds, &c. &c., are found in it. It is coarse and lumpy in texture. Its selling price is $1.50 per bbl. of about 200 lbs. So long as the farmer can procure 400 lbs. of good stable-manure for $1.50, so long it is cheaper than this poudrette.

In this connection the question occurs—can not the night-soil of cities be profitably secured for agricultural purposes without losing any of its original value. Undoubtedly it can be, and it is a subject worthy of the most careful consideration of the parties concerned in such an undertaking, viz: those on whose premises it is inevitably produced, those who may find profitable employment in making it portable, and finally, those who are in perpetual need of just such a material, for increasing the yield of their farms.

Nesbit has estimated the total amount of dry matter annually excreted by an adult, well but not highly fed, at 90 lbs., containing 16.85 lbs. of ammonia, and 2.75 of phosphoric acid, the former at 14 cents per lb.=$2.36; the latter at 4½ cts.=12 cts. Both amount to $2.48. If this estimate be correct, a city of 30,000 inhabitants, like New Haven, furnishes yearly $75,000 worth of the most valuable fertilizing material, which now is not only lost, but is a nuisance. Could a little prejudice be overcome, undoubtedly the whole of this might be economized in a most profitable manner. The raw material, if collected fresh, is rich enough to warrant the outlay of considerable money in preparing it for use.

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MISCELLANEOUS FERTILIZERS.

DeBurg's Bone Meal.

This substance sent me by Messrs. Backus & Barstow, of Norwich, had the appearance of *bone-ash* or the residue of burnt-bones, and proved to be such on analysis.

Water,	3.04
Organic and volatile matters, mostly charcoal,	2.07
Sand and insoluble matters,	11.19
Lime,	42.17
Phosphoric acid,	34.06—35.42
Carbonic "	1.23
Magnesia, sulphuric acid, with undetermined matters,	4.88
	100.00

Bone meal is a term that has long been in use in England, to signify finely ground bones, and it is a departure from good usage to apply the name to bone-ash. This is a good phosphatic fertilizer, and comes very near in composition to the average samples of Columbian guano. The calculated value is $31.75.

Ivory Dust and Turnings.

The examination of these substances from the comb factory at Meriden has led to the following analytical results:

	Dust.	Turnings.
Water,	11.20	10.92
Organic matter,	33.70	37.94
Lime,	27.09	25.80
Phosphoric acid,	23.22	22.11
Ammonia yielded by organic matter,	6.00	6.46

The above is nearly the composition of the bones of domestic animals, and it is obvious that this material must be a valuable fertilizer, though the quantity that can be procured is small.

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Beef Scraps.

This material is a residue of the soap-boiling processes. It occurs in the form of cakes, which having been very strongly pressed, are so hard as to withstand any attempts at pulverization. In composition it is almost pure muscular fibre or cellular tissue. It contains 97.42 per cent. of organic matter, and yields 13 per cent. of ammonia on decay. It must be exceedingly valuable to manufacturers as a source of ammonia, but from its hardness can not be directly useful, except it is reduced by some solvent, or is softened by soaking with water. I understand it now commands a good price from the manufacturers of superphosphates.

On the Composition and Agricultural Value of Cotton-Seed Cake.

Recently a process has been patented for removing the hulls from cotton-seed, so that this material may be expressed for its oil. This new industry is now prosecuted in Providence, R. I., and so enormous are the quantities of cotton-seed that hitherto have been nearly useless refuse, which may thus be profitably economized, that this manufacture will doubtless be a permanent and extended one. The important agricultural uses to which the cake remaining after the expression of flax, rape and other oily seeds, have been applied, makes it important to study what are the properties of the cotton-seed cake. I have examined specimens from the Providence mills, and find that its composition is not inferior to that of the best flax-seed cake, and in some points its agricultural value surpasses that of any other kind of oil-cake of which I have knowledge; as will appear from the following statement of its composition compared with that of linseed cake.

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	I.	II.	III.	IV.	V.
Water,	6.82		11.19	9.23	16.94
Oil,	16.47		9.08	12.96	
Albuminous bodies,	44.41	48.82	25.16	28.28	10.69
Mucilaginous and saccharine matters,	12.74	}	48.93	34.22	40.11
Fibre,	11.76	}		9.00	27.16
Ash,	7.80	8.96	5.64	6.21	5.04
	100.00		100.00	100.00	100.00
Nitrogen,	7.05	7.75	3.95	4.47	
Phosphoric acid in ash,	2.36	2.45			
Sand,	.94		1.32		

No. I. is the cake from Providence.

No. II. gives some of the results of an analyses made by Dr. C. T. Jackson, on cake prepared by himself from hulled cotton seed. (Patent Office Report for 1855, agricultural part.)

No. III., analysis of Dr. Anderson on cotton-cake, made at Edinburgh, Scotland.

No. IV., average composition of eight samples of American linseed cake. (Journal of Highland and Ag. Soc. of Scotland, July, 1855, p. 51.)

No. V., Meadow Hay, Saxony, Dr. Wolff.

The two points of interest before us are, the *nutritive* and *manurial* value of this cake. With reference to both, chemistry and practical results agree in their conclusions. The great value of linseed cake, as an adjunct to hay for fat cattle and milch cows, has long been recognized; and is undeniably traceable in the main, to three ingredients of the seeds of the oil-yielding plants. The value of food depends upon the quantity of matters it contains which may be appropriated by the animal which consumes the food. Now, it is proved that the fat of animals is derivable from the *starch*, *gum* and *sugar*, and more directly and easily from the *oil* of the food. These four substances, are, then, the *fat-formers*. The muscles, nerves and tendons of animals, the fibrine of their blood, and the curd of their milk, are almost identical in composition, and strongly similar in many of their properties, with matters found in all vegetables, but chiefly in such as form the most concentrated food. These *blood-*(and *muscle-*)*formers* are characterized by containing about 15½

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per cent. of nitrogen; and hence are called *nitrogenous substances*. Since albumin (white of egg) is the type of these bodies, they are also often designated as the *albuminous bodies.*

The bony frame-work of the animal owes its solidity to *phosphate of lime*, and this substance must be furnished by the food. A perfect food must supply the animal with these three classes of bodies, and in proper proportions. What proportions are the proper ones, we have at present no means of knowing with accuracy. The ordinary kinds of food for cattle, contain a large quantity of vegetable fibre or woody matter, which is more or less indigestible, but which is indispensable to the welfare of the herbivorous animals, as their digestive organs are adapted to a bulky and rough food. (See analysis V.) The addition of a small quantity of a food rich in oil and albuminous substances, to the ordinary kinds of feed, has been found highly advantageous in practice. Neither hay alone, nor concentrated food alone, gives the best results. A certain combination of the two presents the most advantages.

For fattening animals, and for increasing the yield and quality of milk, linseed cake has long been held in high estimation. This is to be expected from its composition. The muscle of flesh and the curd of milk are increased in quantity, because the albuminous substances of the linseed constitute an abundant and ready source of them; the fat of the animal and the butter of the milk are increased by the presence in the food of so much oil and mucilaginous matters.

A year or two since, Mr. M'Lagan of Scotland, reported in the Journal of the Highland Society, some trials on the value, as food, of linseed cake, cotton-seed cake, and bean meal. Analyses III. represents the composition of the cotton cake; IV. that of the linseed cake. The bean meal has 25 per cent. of albuminous matters, but 1½ per cent of oil, and correspondingly more of the bodies that have the same nutrient function as the mucilaginous and saccharine matters. Six animals of nearly equal size and quality were fed during three months in Winter, with all the turnips and straw they

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would eat, and in addition, two of them received daily, four pounds of linseed cake, two, four pounds of cotton-seed cake, and two, four pounds of bean meal. The animals thrived as well on the cotton-seed cake as on the other kinds of food—as shown by their appearance, and by their weight when slaughtered.

When linseed cake is fed in too large quantity it purges the animal. The quality of beef is excellent when the daily dose of oil cake does not exceed six pounds for an animal of 700 pounds. Cases are on record when more than this quantity has spoiled the beef, giving it a *taste like tallow.*

Probably like results would follow excessive feeding with cotton-seed cake. In the best cotton districts of India, the cotton-seed bears a high value as food for fat cattle. I know of no experiments with it on milch cows, but it is to be expected that here also it will have the same effects as linseed cake.

A Bavarian farmer has recently announced that heifers fed for three months before calving with a little linseed cake in addition to their other fodder, acquire a larger development of the milk vessels, and yield more milk afterward, than similar animals fed as usual. Cotton-seed cake must have an equally good effect.

Some of those who have used cotton-seed cake have found difficulty in inducing cattle to eat it. By giving it at first in small doses, mixed with other palatable food, they soon learn to eat it with relish.

On comparing the analyses II. and I., with the average composition of linseed cake, IV., it will be seen that the cotton-seed cake is much richer in oil and albuminous matters than the linseed cake. A correspondingly less quantity will therefore be required. Three pounds of this cotton-seed cake are equivalent to four of linseed cake of average quality.

The value of the article in question as a manure, is obviously very considerable. The dung of cattle, etc., fed upon it, will be greatly richer, both in nitrogen and phosphates, than that of animals fed on hay alone. Where stock is kept, probably the best manner of using this cake as a fertilizer, is

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to feed it to the cattle, and carefully apply the manure they furnish. In this way, whatever is not economized as fat or flesh, will be available as manure.

In England and on the continent of Europe, linseed and rape-cake have been used directly as a dressing for the soil, and with results fully equal to what is indicated by their composition. These kinds of cake decompose readily, and their effect is usually finished in one season. 500 or 600 pounds per acre is considered a good application; more is liable to be injurious. It is found that when applied with the seed, these kinds of cake prevent germination to a considerable degree; but if applied a week or so previous to sowing, this detriment is not encountered.

The cotton-seed is often employed in the Southern States, with good effects, as a manure for Indian corn, &c. I do not know whether like rape and linseed cake, it destroys the seed. For manuring purposes it is about one-third richer than linseed cake. Its effects are mostly due to the nitrogen it contains, and therefore are similar to those of guano. It is best used in conjunction with other fertilizers. I should judge that a mixture of 400 pounds of this cotton-seed cake with 50 bushels of leached wood-ashes per acre, would make an excellent application for most crops. It is highly important that the cake be uniformly distributed, and thoroughly intermixed with the soil.

This cotton-seed cake is doubtless an excellent material for composts, owing to its ready decomposability.

Its commercial value as a manure, if calculated from the prices adopted in this Report, is $21.60. The market price is $25.00. Therefore, next to Peruvian guano, this is a substance which, if its composition proves uniform, is most nearly worth what it costs.

NOTE. In making the analyses which are included in this Report, I have been greatly assisted by the following gentlemen, students in the Yale Analytical Laboratory, viz: Messrs. A. D. Willson, A. P. Rockwell, M. Watson, and G. F. Barker. I am especially indebted also to my skillful professional assistants, Messrs. Henry M. Seely and Edward H. Twining, who have each made numerous analyses.

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PEAT AND MUCK.

Preliminary Notice.

The investigation of the Peats and Mucks sent in to me from various parts of the State, last summer, has been prosecuted as far as has been possible. Seventeen specimens have been submitted to analysis, and in them have been made the following determinations, viz.:

Water.
Organic matter.
Ash.
Portion soluble in water.
" insoluble in water.
" soluble in carbonate of soda.
" insoluble in " " "
Total nitrogen.

In two cases, complete analyses of the ash have been carried out. In all of the them ash has been more or less analyzed, where the quantity of it has allowed.

This labor has occupied my able assistant, Edward H. Twining, nearly the whole of four months. Some of the analytical processes consumed a great deal of time, and the consequence is, that now, when I must present my report, many interesting points remain uninvestigated. I therefore prefer not to enter into the details of the results already obtained, but to reserve this most important subject for further and more extended studies if such be the pleasure of the Society. The analytical results as far as finished, serve to indicate the direction in which new researches may be undertaken with most promise of usefulness.

I may mention in brief, some of the more important facts that have transpired in this research. Very great differences exist between different specimens. Some are but slightly advanced in the peaty decomposition, and yield but a few per cent. of matter soluble in alkalies; others consist almost entirely of soluble peaty substance, the so-called humic

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ulmic and geic acids. An important question, yet very undecided, so far as my knowledge extends, is, how do these differences stand connected with the readiness of decomposition which is essential to the fertilizing applications of peat? This is a branch of inquiry that deserves to be studied experimentally, both in the laboratory and on the farm. Hereafter I shall attempt to offer some suggestions for a practical study of this subject, which may lead to a better knowledge of the best methods of composting, &c. Some of the peats examined, have dissolved in water to the extent of only three-fourths of a per cent. Others have yielded to water, five, six, and one as much as twelve per cent., viz., five per cent. of mineral, and seven per cent. of vegetable matter. The precise nature of the matters thus dissolved has not been accurately studied in any one case. It is shown, however, that the character of the portion soluble in water varies very widely: for example, in the specimen yielding twelve per cent., it is chiefly compounds of the peaty acids with oxyd of iron, that are extracted by water. In other cases much lime and little iron is dissolved. These particulars deserve the most minute study, because the matters soluble in water are those which are immediately serviceable to vegetation. Very likely some of these peats may be at first injurious from the quantities of soluble salts of iron they contain.

That part of the investigation relating to the estimation of nitrogen, has furnished the most interesting results. No specimen of peat that I have examined, though all have been merely air-dried, and contain from ten to thirty per cent. of water, has yielded less than one per cent. of potential ammonia, while the average yield is two per cent., and one specimen gave three and one-half per cent., which is one-fifth as much as is found in the best Peruvian guano.

Mr. Daniel Buck, of Poquonock, has long employed peat as fuel, and some time ago brought to the notice of Messrs. Dyer and Weld the fact that the peat he employs, exhales a strong odor of ammonia when burning. This observation has been made in my laboratory with other samples.

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In the two specimens of peat-ashes, one furnished by Mr. Buck, and coming from the peat just mentioned, the other by Mr. Stanwood, of Colebrook, were found, besides large quantities of carbonate of lime, considerable sulphate of lime and magnesia, also nearly one per cent. of phosphoric acid and the same amount of alkalies.

The gentlemen who have furnished these peats, namely, Messrs. T. S. Gold, Nathan Hart, Titus L. Hart of West Cornwall, Lewis M. Norton of Goshen, Messrs. Pond and Miles of Milford, Messrs. Russell Peck of Berlin, B. F. Northrop of Griswold, J. H. Stanwood of Colebrook, S. Loveland of North Granby, Daniel Buck of Poquonock, Adams White, Phillip Scarborough, Perrin Scarborough, and the Messrs. Dyer of Brooklyn, have communicated to me a large amount of valuable information respecting the character and value of the deposits, which would be most appropriately embodied in a future report, should I be permitted to complete this investigation.

Practical men have already abundantly proved that many peats are of exceeding agricultural value. This is no discovery of mine, or of those who have already subjected these substances to a chemical examination. Mr. Daniel Buck of Poquonock, has used his peat without any preparation, as a top-dressing on grass, and has experienced the most decided results from its use in this simple manner. He estimates his raw peat as equal to cow-dung in fertilizing value.

What may be expected from a thorough chemical investigation of these deposits is this: We shall be able to decide which are valuable, and which are indifferent for fertilizing purposes. We shall excite throughout the state and the whole country, in fact, an interest in these deposits, that will lead to their extended and systematic use. We shall thus acquire a full practical knowledge of their merits, and of the best methods for converting them into grain and flesh and milk.

Unquestionably, the greatest service we can render to our farming interests is to develop our internal resources. The importation of foreign fertilizers is enriching foreign merchants, and withdrawing cash from the pockets of our

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farmers. Their use is extremely liable to run to excess, and makes our agriculture unsteady and improvident. We need, not only to live and make money from our soils, but to constantly improve the soil, and thus extend our agricultural capital. The enlightened economy of the enormous masses of muck and peat which Connecticut contains, which probably exceed in extent those of any other state, can not fail to exercise the most beneficent influence on our material prosperity. We shall thus at once fertilize those fields that are already arable, and reclaim from waste a large area of land that is now all but useless.

I doubt not that the peat beds of our state are destined to be of immense value for other than merely agricultural purposes. As *fuel*, they have already been employed to some extent. In Europe a vast deal of ingenuity has been bestowed upon the means of preparing peat-fuel, so as to adapt it to transportation and advantageous use. In Bristol of this state, the Copper Company have for some time employed a furnace in connection with their steam engine, which receives the peat as it comes dripping wet from the swamp, and consumes it with the greatest economy, even the water it contains being made to contribute to its heating effect.

In Germany, a method has been invented for converting the porous, bulky, and friable peat, into dense hard cakes, or bricks, which contain little of the coarse impurities of the peat, and may be transported without loss or pulverization, and burn with a great degree of freedom. All this is accomplished without any pressure, by simply diffusing the peat in water, allowing the latter to settle, and drying the deposit.

Again, in Ireland and Germany, peat is consumed in large quantities in an entirely new industry, which has originated and grown to a good deal of vigor within the last five to six years. The peat is distilled, either over a free fire, or by over-heated steam, and a large number of useful products are thus obtained, quite analogous to those now prepared to some extent in this country from bituminous coals.

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As an example of the kind and quantity of these products, the following statement may be adduced:

From a turf or peat excavated in Hanover, Germany, and worked in the air-dry state, were obtained:

2	per cent.	of a	clear, colorless, light turf-oil or photogene.
2	"	"	dark, heavy "
$1\frac{1}{2}$	"	"	asphalt.
35	"	"	peat coal or coke.
15	"	"	illuminating gas.
$\frac{3}{10}$	"	"	paraffin.
4	"	"	kreosote.
40	"	"	water containing 1—3 per cent, ammonia.

These products are all susceptible of useful applications for purposes of illumination, lubrication, heating, preservation of wood, manufacture of lamp-black, varnish, and even of perfumery.

If I should be authorized to continue my labors, I shall communicate to the Society a full account of all these various technical applications of peat, in so far as they promise to be of service to the industrial interests of this state.

I have taken measures to provide myself with means of information on all these topics, as furnished by the scientific and technical journals and publications of Great Britain, Germany and France. I also wish to examine personally, the more important of our peat-beds, so as to be able to compare their physical with their chemical characters, and thus to establish rules by which practical men may be guided in the economy of the different varieties.

In conclusion, I would beg leave to draw attention to the use of fish as manure. The discovery of some simple process for rendering them transportable and enabling them to be applied to the soil without causing the horrid and unhealthful effluvium which too commonly accompanies their use, is a most desirable object. From some preliminary trials, I have strong hopes that such a method may be made accessible to all our sea-coast farmers, and if the society desire, I am ready to prosecute a full investigation into this subject.

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APPENDIX.—Methods of Analysis.

The general method of analysis for guanos, superphosphates, &c., whose commercial value lies almost exclusively in ammonia and phosphoric acid, is as follows:

1. Of the well averaged and pulverized sample, a quantity of 2 grams is weighed off and dried at a temperature of 212° until it ceases to lose weight; the loss is water. If loss of ammonia is feared, a known quantity of oxalic acid is added before drying.

2. The dried residue of 1, is gradually heated to low redness in a porcelain cup, and maintained at such a heat, until all organic matter is burned off. The loss is organic and volatile matter. Usually the substance is directly heated to redness without separately estimating the water.

3. The residue of 2, is pulverized if need be, and digested for some time with concentrated hydrochloric acid. The diluted solution is filtered off and washed, the residue weighed as sand and insoluble matters.

4. The solution 3, is brought to the bulk of three or four liquid ounces, mixed with rather more than its volume of strong alcohol and enough sulphuric acid to unite with all the lime which is thereby completely separated as sulphate. The liquid is filtered off, the sulphate of lime is washed with dilute alcohol, dried and weighed; from it is calculated the amount of lime.

5. The solution 4, is evaporated until the alcohol is removed, then without filtration, to it is added an excess of a liquid made by dissolving in 2 quarts of water, 30 grams of sulphate of magnesia, 41 grams of chlorid of ammonium, 37½ grams of tartaric acid, and 40 grams of carbonate of ammonia, (see W. Mayer, in Liebig's Annalen, Vol. 101, p. 168,) and finally excess of ammonia. After five to six hours, the precipitate of ammonia-phosphate of magnesia, usually mixed with some brown organic matters, is collected in a filter and washed three or four times with ammonia water; it is then dissolved from the filter by dilute hydrochloric

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acid, and again thrown down by ammonia, after addition of a little tartaric acid. It is now pure, and is finally washed and weighed as usual for the estimation of phosphoric acid.

6. 1 gram of the manure is burned in the usual way, with soda lime. The resulting ammonia is collected in 20 cubic centimeters of a fifth-solution of oxalic acid, (12.6 grams of pure oxalic acid to a liter of water,) and estimated by titrition with a dilute potash solution.

7. To determine actual ammonia, one or two grams are mixed in a flask, with a pint of water; a piece of caustic potash is added and three-fourths of the water slowly distilled off through a Liebig's condenser into a standard oxalic acid. The ammonia is then estimated by titrition.

In complete ash-analysis of manures, or in examining organic bodies, e. g, cotton-seed cake, the usual and approved methods are employed.

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ADDRESS.

Mr. President and
Gentlemen of the Society:

I come here with no literary discourse to-day; but only for an hour's plain talk about our business of farming; not about English farming, nor about Wisconsin farming, nor even about New York farming, but about Connecticut farming;—about this hard soil of ours; about what we are doing with it—what we can do with it—what we ought to do with it.

I am aware that this is a manufacturing festival, as well as an agricultural one; but, gentlemen, I shall not say one word to-day of our manufactures; they need no illustration from me or from the lips of any man. They tell their own story; not perhaps in your tents to-day; we have to regret indeed that the exhibition is small. But the true show-ground for Connecticut manufactures is—the world.

You can not have come here from a country so remote as never to have heard of the handicraft of Connecticut artizans. This very day, on which I speak, Connecticut engineers are laying down high-ways across the forest deserts of Russia; this very day, a king of the Sandwich islands is issuing his decrees upon paper manufactured in Connecticut; this very day—perhaps this hour—Connecticut pistols are cracking under the walls of Delhi; and there is not a country on which God's sun is shining, where time is measured by the swaying of a pendulum, which has not some day heard the ticking of a Connecticut clock.

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Well, gentlemen, can you say as much for your agriculture? Is there any demand in France or Belgium for Connecticut farmers? Has any body in Russia, or elsewhere, knowledge of a Connecticut herd-book or of a Connecticut system of farming?

The stranger coming to this Fair, whether from the East or from the West, and seeing our fields of light stubble, buried in a huge growth of rag-weed, our tottering walls, our hedge-rows of golden rod and hazel bushes, our barn-yards leaking into the high-ways, and feeding great crops of stramonium and smart-weed, must wonder greatly what sort of show we are having here.

And if he should stop, and learn as he might do, that two-thirds of the corn in the produce stores of Bridgeport, came from Ohio, the flour from Virginia or New York, the oats from Michigan, he would wonder still more what could be our claim to any agricultural distinction. Nor is this the worst; he might learn, if he were to press his inquiries, that the exceedingly august body of men who make laws for us in May, had withdrawn a year ago the scanty pittance which had hitherto been paid for the encouragement of that Society, under whose auspices we are met together, and which has struggled bravely to put a somewhat better face upon our agricultural development.

And yet, this same stranger might see upon the boards yonder, and in the stalls, as plump grain, as sleek cattle, and as large vegetables, as can be found elsewhere.

And you boast of this.

But have you ever considered how small a proportion the number of your yearly exhibitors bears to the great army of outside, every-day, practical farmers? Have you ever considered how many of the prize vegetables have been made monstrous, by amateurs—by men who have not depended upon vegetables for their income? Have you considered how the names of certain professed breeders of cattle appear year after year upon your prize list? Have you considered how few of these fine cattle are, after all, bred with a purely

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agricultural intent? And when I say agricultural intent, I mean, not their value as propagators of a fancy race, commanding fancy prices; but I mean their positive, every-day value, as fit for the shambles, the yoke or the dairy. For practical farmers forget breeds, and names, and reputations, and come to these main points in the end. Has it not a very sorry look for our farming, when practical men come here year after year, more as spectators than as actors? Now unless these practical men can be converted to a faith in good farming, all the shows of all the sleek cattle, and all the prize vegetables in the world, can not change the agricultural aspect of the State.

How is this conversion to be effected? Not surely by putting before us examples which however splendid in themselves, are yet unsustained by a basis of cash profit. You may show animals of the longest pedigree and the silkiest skin, but if the pampering, and the combing, and the rearing, and the purchase money, will quadruple what the same animal will bring at auction to-day, will the practical man undertake the rearing of such stock? You may show mammoth vegetables; but if their cost in sulphates and phosphates has already eaten up their worth, who wants to raise them?

I do not say that this is true of the animals or vegetables on show to-day; but I do say that an impression of that kind is very general on the minds of small, up-country farmers; and therefore it concerns Executive Committees to inquire a little more narrowly into the cost of production; and to ticket such things for emulation only, as have been grown at the least possible cost, consistent with thorough goodness.

Is it not true indeed that the practical farmer—and by the practical farmers, I mean those men who hold the great balance of Connecticut farm-lands in their keeping—is it not true, that they reply to all your incentives to the raising of such vegetables, grain, fruit, cattle, as they see here to-day, that inevitable, shrewd, Connecticut reply—"it don't pay?"

Well, *does* it pay, on this hard soil of ours, under this winter of eight months, does it pay to farm *well?*

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I shall begin my reply to this question, in true Connecticut style, by asking another; Does it pay to farm badly? Does the common, irregular, rag-weed farming pay? I address myself to the cautious, old-fashioned, practical farmer of the interior, and ask—does your farming pay?

Possibly I am mistaken, but I think it does not pay. There are to be sure two sorts of paying. There is a paying which serves to keep only body and soul together, and all out of the grip of the constable, (you may reckon this even, to be something in these times.) There is another sort, which is I think more commendable to young America, which enables a man to lay by something for such panic times as those we live in; to dower his daughters if they marry; to set up his sons with a good education; and in this view, does your helter skelter farming pay?

I will suppose you have a hundred acres of land, all paid for. Twenty are in wood and go to supply your fires. Thirty more are in brush pasture, which you cut over every third year, in August, in the old of the moon, confidently thinking that it won't sprout again, (but it does.) The balance is in tillage, and grass-land which is diversified with occasional quagmires and bits of bog-meadow. Your barnyard lies upon an easy slope, and every rain drenches it, feeding with the wash a luxuriant company of nettles, burdocks, and smart-weed which grow upon its edge.

You keep some four cows stingily; you rear a brace of calves; you have a yoke of oxen, a horse, some shoats, and would have a score of sheep if the neighbor's dogs did not annoy you. You have a little butter to sell; a little rye; a little pork; a pair of calves; possibly a little cider; may be a cord or two of wood; your total sales foot up some four or five hundred dollars. Out of this you have to pay your hired man through planting and haying; your grocer's bill; your tailor's and shoemaker's bill; your blacksmith's bill; your school bill; your tax bill; your church bill, (I hope you don't forget this); your wife's millinery bill, (I know you don't forget this); and after these, I fear there is but very

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little left to dower your daughters or to buy a Western farm for your son.

Is there any thing in your balance-sheet that looks hopeful? Any thing that tempts your neighbor mechanics to desert their craft and buy a patch of your land to practice your system of farming? Do you find that your son entertains any grand visions of the fortune you are rearing out of the land? Do you not indeed admit the poverty of your farm system and its results, when you second every effort of his to push away, westward, where the land is rich and clean, and possessed of its native luxuriance? Do you find that ambitious boys around you, boys whose brains are lighted with enterprize, and whose hands are brim full of daring—do you find these coveting a corner of your homestead, or looking upon any such fields as yours as giving promise of a career in life—a career of influence—of distinction—of wealth? Do they not rather, when such thoughts come over them, look within the counting-room of some merchant or manufacturer, or listen to some great cause in some great court of the city?

No, gentlemen, the plain truth is—and you know it—that your sons, if you have grafted any ambitious temper upon their minds, are deserting year by year, your farmer's calling, here in Connecticut. If they will be farmers, they go where profits are large, because tillage is easy; they see no promise of a career satisfactory to either their social or their intellectual instincts, in the ordinary farming of Connecticut.

It may be asked, if our average farming offers so little pecuniary or other inducement, why do so many quiet, sensible old men keep by it? Gentlemen, why do your cart-wheels in the spring time follow the old ruts? Only because they are easy; and because it would require a hard pull and a long pull, and perhaps a back pull, to get out of them.

Well, gentlemen, if bad farming will not pay, and I think you admit it by favoring every impulse of your children to find their way into other pursuits—if, I say, this bad farming, by which I mean the average Connecticut farming—does not pay, either socially or pecuniarily; and if, as *you* say,

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high farming does not pay, where do we stand to-day? Why are we here? Why are we bloating up this empty bubble of agriculture? If it be not properly pursued, a business which can develop healthily and well a man's faculties, and reward his industry with abundance, then it is all a sham; and we might as well allow our hill-sides to grow up in forest, and give over the whole matter of fine farming to the pastoral poets who rave about the green fields, and the sunrises they never saw in their lives.

But, gentlemen, standing here and speaking here in the name of Connecticut farmers, I say we do not mean to do this. We assert and contend that farming, even in our State, may be made a thoroughly remunerative business.

And how is this to be done?

First of all, *by avoidance of that common error—that a man can make farming an amusement.* Who ever made an amusement pay? Who ever will? To farm well, a man must be a farmer, and nothing but a farmer. He can not throw off great crops in the intervals of other business; he can not make a cat's paw diversion of it; he must give his mind to it; he must enter upon it seriously. Do you often find a man a great merchant and a great lawyer at once? Do you find him a great mechanic and a great trader at once? Or suppose that a hot-headed, pot-house politician, should undertake to amuse himself by a litfle quiet preaching on Sundays, what sort of Christians do you think would follow in his wake? Success comes to no profession, and no sphere of life, without concentration. Wherever you find a man making his path shine, you may be sure that he is giving all the forces of his mind to the object of his ambition—you may be sure that all his energies are rallied to one center, like the converging rays through a burning-glass, until the thing aimed at is fused, and glows, and makes for him a red blaze of triumph.

And is it reasonable to suppose that a business-like farming is any exception to this general rule—least of all, in a climate, and upon a soil, where every energy must be brought to bear? A man may live in the country indeed, and give

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a rural name to his place; he may have fine horses, and sleek cattle, and take prizes; but is this successful farming? Not a bit of it. Successful farming lies rather in that prudent, thoughtful husbanding of resources, that wise disposition of crops which evokes fertility out of barrenness—which demands sober, earnest, and complete attention—which may not indeed gain its premium this year, or next year, but which will find its legitimate reward in a slowly accumulating fertility.

I allude to this matter more particularly, because what is called high farming has suffered most reproach of all, through the example of those gentlemen who have come to the country from the city with the idea of making farming a pretty amusement. Their idea has been, that no brain and no calculation need be brought to the business. They still shave paper in Wall-street with their eyes open, and think they can be great farmers with their eyes shut. They never made a greater mistake in their lives. They drain, and trench, and ditch, (all of them proper things when done prudently); they are appointed on committees, and wear white badges, and import cows; and yet in two or three years time, you find them drawing off, and joking with their Wall-street friends about that "doosed expensive" business of farming. And so it is: not only for them, but for those who have the real interests of agriculture at heart. They debauch, by their wanton expenditure, the healthful minds of earnest young men; they set examples which can not be followed by reason of their extravagance; they weaken faith in scientific culture; they seem to enjoy doing things out of the reach, and beyond the compass of the every day practical farmer. Yet it is a safe general rule, that whatever investment in agricultural improvements will not pay the poor man, will not pay the rich man; and whatever will pay the rich man will pay the poor man. Thorough tillage will pay one as well as the other—thorough manuring and composting will pay one as well as the other—but when it comes to $70,000 barns, and walls which cost $20 the rod, and bulls at a thousand guineas, and fanciful cottages with ginger-

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bread turrets—the matter is more doubtful; and we feel that the parties are amusing themselves, and are not in earnest—not in earnest to establish and perfect an employment, which shall offer a lucrative career for their children.

Again, gentlemen, a man to farm well must not only be wholly a farmer—by which I mean, he must let no other business engross him to the neglect of his farming—*but he must put system into his labor.*

He must not plant every spring-time, "just as it happens"; he must not scratch over a piece here, and a piece there, as his humor takes him; but he must have a well-developed plan, and he must work up to that plan.

There is an immense deal of loose, irregular systemless farming throughout the State. Cattle are bought and sold, lands ploughed or seeded,—not with any system of cultivation in mind, but, as we say expressively, from hand to mouth.

A man sees a good account of the ploughing in of clover, and he determines to try it; but once in blossom, he thinks it a sad pity to lose it all, and determines to cut and come again. What, pray, would you think of a preacher who had determined to be down on a particular sort of sin on the next Sunday, but on Saturday thought better of it, and decided to give the devil a slip for another week?

A bad system is better than none. I shall not spend time to tell you of the advantages of a rotation of crops; you hear of that every week in your agricultural journals. You can not hear of it too much. It is based on sound chemical reasons; but it is after all only one phase of that general system, which you must put into your farm labor, or you *must* fail. Do not say your men can not be depended upon. If they will not carry out your orders, discharge them, and get those who will. Above all things, be systematic yourself. When there is system in the leader, there is system in the follower. Transgress the law yourself, and you will not lack for company.

An eye-glance, as you travel hence back to your homes—an eye-glance, I say, on the farms you pass, will tell you

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what men put system in their work. Where you find buildings in sound condition, fences upright, carts and tools in their appropriate places, neatness at the door-step—you may be sure there is system—you may be sure they belong to a man whom the country grocers are not afraid "to trust."

Again, there must not only be system, but *there is need of more perfect adaptation to soil, climate, and position.*

Times are changed in this State, since farmers could raise profitably every article of their consumption. The railways have brought a new farm-world into our neighborhood; and there are some articles which come to us from that western garden in the production of which we can never compete; and what we can not raise to sell with profit, we can not raise to use with profit. I think there is too little apprehension of this fact—altogether too persistent a sticking by old crops, simply because, like the cart-wheel in the rut, it is easier. But if a man can buy corn cheaper than he can raise it, it is bad farming to raise corn; or if a man can buy wheat cheaper than he can raise it, it is very bad farming to raise wheat. If a man can buy bread cheaper than he can bake it, it is bad economy to bake it.

But the grand error is, that the bulk of our farmers never set themselves to a thorough inquiry and investigation of what they can raise cheapest. They have a way of "letting things slide." They plant corn because they know how, or because it would require some investigation to learn the management of a new crop. They are like those old fogy merchants, who keep to old standard styles of goods, and old ways of long credits, until some fine morning they find themselves stranded with a stock that nobody wants, and acceptances which are waste paper.

Now the nearness to the great markets will enable Connecticut farmers to produce some things to much greater advantage, than the West can grow them. Their variety of surface will enable them to avail themselves of a hundred different exposures. The perishable fruits, for instance, can always be supplied from along the Sound shores. There are men who are making fortunes along the Hudson—in a

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colder latitude than ours—by the growth of raspberries, blackberries, plums; and shall Connecticut men yield to those Dutch farmers in enterprise, in spirit, in tact?

If we can invent clocks and pistols here, can we not discover what will pay the best revenue from our lands? And because the crop be new, and requires care, and investigation and enterprise, shall we shrink, and dawdle, and waste time and land, by clinging to the old? I will venture to say, that if the same amount of energy and inventive resource which is applied to the Waterbury manufactories in a single year, were applied to the lands along the borders of that railway between New York and New Haven, there is not a square acre of it but would pay a fair percentage; and not a single foot of it, but in ten year's time, would bear twice its present valuation for peculiarly agricultural purposes. And here comes up that old New England fallacy, that a man must of necessity pursue a mixed system of farming; a system which had its origin in the days when our wives spun the yarn for our stockings, and wove the cloth to our coats. I need not say that this is, or ought to be exploded. If, indeed, your land has a little of all characters, and a little of all exposures, and a little nearness to ten different markets, and a little of ten climates, the mixed system may be right; if not, it is wrong.

Your land can grow some one crop, or some one general succession of crops, in all probability, a great deal more economically than it can others. It is your duty and your interest to find out what that particular succession of crops is, and to keep by it, until the markets change, or your land falls off in fertility. I of course, do not speak of your garden, or of your personal supplies of vegetables and fruits, but of the crop on which you mainly depend for your monied income. A single succession of crops enables a man to accomplish himself thoroughly in their management. In farming, as in every thing else, it is better to do one thing well, than a half-dozen things tolerably well. That merchant who has one species of goods only in market, by the very concentration of his attention, has a better knowledge and a larger

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control of anticipated sales, than the man whose attention is drawn in ten different directions.

Not only this, but farm labor, if directed to one or two standard crops, is more remunerative, because it gains larger experience and skill by singleness of application; and this is a matter worth special consideration now-a-days, when most of our field labor is supplied by foreigners, taught each one in his particular branch of agriculture. The old days—they are some twenty years gone now—when it was possible to secure a Yankee-born man, who could plough, reap, cradle, drive team, or turn his hand to ox-yokes or axe-helves upon rainy days, is gone by utterly. I do not hear of such men. They are fathers of families in Iowa—possibly sitting in convention in Kansas. And we have in place of them, raw-boned gentlemen in black beaver hats, and black satin waistcoats, who tell you modestly, and with the slightest possible brogue: "Faith, and its meself can do any sort of farm work, as well as iver the next man." But if you press inquiries, they will tell you, with true Hibernian honesty, that "indade, and they niver cradled," and that as for oxen, they were "niver put to that sort of work in the ould countrie." And yet these men may make capital ditchers, or reapers, or gardeners, or perhaps orchardists. In short, there are fair chances of your finding a man who will do two things or three things well; but not the faintest hope of your finding one who will do ten things well.

Another thing, which makes the fourth heading of my remarks, and which I want to bring to your notice, is what I can call by hardly any better name than the *niggardness of Connecticut farmers*—niggardness, not to others, but niggardness to themselves. They are too much afraid of spending. There is too much capital in the land, and too little upon land. They can sink $100 irretrievably in purchase of new land, but never $100 temporarily in mending old land. There is too much pride of ownership, and too little pride of tillage. I know you have heard the same story over and over these ten years past, in your agricultural papers—constantly as your Dominies' Sunday sermons, about mending

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your ways morally; and I am afraid with just as little effect.

Now there is no harm in owning much land, if it is worked up to its full capabilities; if not, an acre is too much. If thoroughly managed, a thousand is not too much. So before you condemn the size of a man's farm, find out how he works it. The great danger is, in putting too much of capital in the soil, and not enough in the equipments—the implements, the tillage, the manure-heap, the stock. I am aware that these things cost. I am aware that labor is dear; but land that will not pay for thorough working, will surely never pay for half working. With $5000 to be invested in farming in Connecticut, not more than $3000 should go to land purchase. The balance should stand for implements, stock, and working capital; and I think a young man of energy, pursuing such a course, would be by half better situated at the end of five years, than if he put his capital in land, and bought, as many do, second-rate tools on credit, and half-starved cattle, and scraped, and twisted, and squirmed, to make the ends meet. A good plough, that needs only a delicate handling to keep it to its poise, and which turns a clean even furrow, is a better investment at a three-fold price, than the snub-nosed, short-shared tool which keeps you kicking sideways at the half-turned sods, and rides out of the furrow at every pebble. So it is with all other implements. So it is with your guanos, if you buy them. So it is with your tillage. So it is with your stock; the best is always the cheapest. But in the matter of stock, the highest priced are not necessarily always the best; for observe, we have a fashion in stock, just as in the city they have a fashion for furs or silks; and I do not think fashion pays any better in the country than it does in the city. We have had in times past a fashion of Merinos, and a fashion of Shanghais, and a fashion of Devons, and a fashion of Short-Horns; all excellent in their place. But the practical man should be guided by common sense, and not by fashion; and I can not help thinking that the best test of a milch cow is after all, in the pail, and not in the horns. The prudent

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farmer must determine by actual test, what stock will best suit his soil, best suit his feed, best suit his exposure, best suit the harshness of his winter or the heat of his summer; and the animal which, subject to these conditions, pays him the largest return upon the least expense of keep, is for him the best animal,—no matter what the name, no matter what the fashion, no matter what the pedigree, no matter how many premium ribbons are flaunting from the horn.

And gentlemen, there are splendid Short-Horns, and splendid Devons, and very fair Jersey cattle here to-day; and it is for you to say which of these breeds will cross most profitably with your own, or which may be adopted altogether. Though I can not help saying that heavy cattle seem to me to demand a deep, full soil, and tender cattle a mild winter; and it does appear to me very problematical whether our rough Connecticut farms will ever carry with profit to the grazier or the dairyman, the heavy Short-Horns or the Herefords. Of course, if we adopt the soiling system, if we feed in the stall, we give the animal a purely artificial atmosphere; and if we keep our walls thick enough, can rear elephants. But we speak to-day of the great mass of practical farmers, who trust to the pasturage which God has spread upon our hill-sides; and which, if it have not the length and luxuriance of the Kentucky bottoms, can yet boast the star-like yellow of the dandelion, and the honied sweetness of the white clover; which all through the delicious and the dreamy days of June, will tell their story in brimming pailfuls, and in golden globules of butter.

I must say farther, that it seems to me our patron Society is paying less attention than it should to the improvement of our native cattle; by which I mean those cattle who, though of foreign origin, remotely perhaps, have yet become thoroughly acclimated; which have lost their distinctive character as representatives of this or that race, and which by proper attention to their good points, and careful breeding, might, I think, develop throughout the State, a half-dozen of *cream-pot families*. I think that instead of a premium of fifteen dollars for the best native cow, and thirty dollars for

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the best short-horn, it should be thirty for the best native, and fifteen for the best short-horn; and I will venture the opinion that there are native cows within fifty miles of where we stand, which considering cost of keep and care, considering their hardiness, and their full and well-sustained flow of milk, yield a larger percentage of profit than any Short-Horn in the State.

Because the Belgian farmers are the best of all farmers at home, we do not think it necessary to import a race of Belgian farmers for Connecticut. We choose rather, by our own efforts, and specially by the efforts of the Executive Committee of this Society, to improve our own breed of farmers.

And now having gone over these five points—what next? *There is need for more brain put to the farmer's work.* We have hand enough, leg enough, body enough, but we want brain; most of all, in this hard New England climate, on this hard New England soil, where the hills are high and the stones thick. As I said, our ingenuity is not at fault in manufactures. Every brook is making a wheel sing, and every wheel carrying in all ordinary times, its dripping floods of gladness; but in our farming, ingenuity, tact, and the energy they create, are wofully lacking. I think the schools send us rather more than our share of the blockheads. Wit, ingenuity, shrewdness, tact, seem to gravitate, all of them, into other pursuits, into cities, into shops, into courts, into pulpits; and the dullest of the sons takes the farm. I dislike to say it. I dislike to say it all the more, because it is so true. And is there no room for tact, and shrewdness, and knowledge, in the profession of farming?

Mr. Burke—than whom a greater man mentally, never opened his lips in the British Parliament—said a century ago, when farming was far less than it is now, "It requires ten times more of labor, of vigilance, of attention, of skill, and let me add, of good fortune also, to carry on the business of a farmer with success, than what belongs to any other trade."

If this was true in that day it is doubly true now; for

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there is not a science or pursuit in the world, which is so thoroughly progressive as the pursuit of farming. The man who thinks he knows all that is to be known about it, is laboring under as great a mistake as the Ass in the Spanish fable, who thought he had drank up the moon, when he had only drank up its reflection in a water-pail. No year passes in which the oldest farmer, and the keenest chemist, have not something to learn about farming. For years together, the most distinguished chemists discuss how some single element of growth is supplied to vegetable life. They experiment in the dark and in the light, in sand and in loam; they catch some little truth, now at Rothamsted, now in France, now in the Laboratory of Liebig; they discuss, and deny, and repeat; and at the end of all, how little they can tell us of that vital energy in the plant which transmutes the floating gases into fiber, into flower, into fruit! How the little thread-like roots explore every cranny of the soil, and take up nourishment there, where the chemist, with his best tests, can find none; how the vibrating leaves grapple with their green palms every particle of food that floats upon the winds; and with what subtler alchemy than any man's, they rifle all nutrition from the dews, the rains, the cool evening air, and carry it all slowly, surely,—day after day, night after night,—to the feeding of the ripened stem!

Thus Science wearies itself, and wearies itself vainly, in the search after a single item, in that book of Nature, whose leaves are always unfolded under the farmer's eye. Shall we say then, there is not enough there to tax all the powers of his brain?

Take your own piece of land—I care not how large it is, it may be an acre, it may be a thousand—whenever you shall have determined by your observation and experience, what crops that land will carry best, what depth of tillage it will warrant, what manures will give it its maximum of fertility; you have, by your observation, and judgment, and experience, resolved some of the grandest problems in physiology and in chemistry.

Observe, I do not say you *can* do this. If you could,

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farming would be reduced to the certainty of a mathematical science. But you can approach it; and the more you tax your brain, the more you intensify your observation, the more you avail yourself of the experience of others, whether scientific or practical men, the greater are your chances of success.

There are many good practical farmers, who cherish a wholesome horror of what is called scientific farming; and I must say they have a good deal of justice on their side. There are quacks in chemistry, as in medicine; and there are good chemists who have their hobbies, and who ride them rough-shod over our grain-fields. The science of the laboratory is one thing, and the science of the field is another; and there is no more reason why a pure chemist should farm well, than why a good lecturer on natural philosophy should make a good wheelbarrow.

The thoroughly scientific man understands and admits this. He can tell you what food enters into the constitution of plants; he can tell you what goes to the composition of soils; but as regards adaptation of one to the other, it is a thing of outside experiment, subject to a thousand atmospheric changes, to different degrees of tillage, and a hundred varieties of condition, about which the farmer, and the farmer alone can best judge.

For instance: a chemist may tell you that a particular soil needs only vegetable matter to render it fruitful. If he tell you, that however you apply this, you may look for a crop, he is a quack, and goes beyond his province. It is for you to determine, by your practical farm knowledge, how that application is to be made. But suppose that acting upon the faith of simple, scientific dictum, without using your own brain, you should determine to plough in some old stack bottom upon a dry, gravelly knoll; you would very likely lose your labor, and your crop beside. Yet don't condemn the chemist. If you had used sagacity and ploughed in some peat which had been exposed for a year to the air, and then applied your stack bottom as a mulch—to your

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potato crop, we will say—you would have shown the chemist right, and yourself a sensible man.

Again, the chemist comes to you with a gill of brown powder in his hand, looking like Scotch snuff, and smelling like your daughters' scent bottle, and says this dust will grow a dozen good hills of corn. You try it and find he is right; you have capital corn. The next year you try it again and pay less attention to your barn-yard manure; again you have good corn; the third year it is still good, but not quite up to the first year's work; and the fourth it has even less effect; the fifth it seems to bring in sorrel, and makes you doubtful if guano is what it is "cracked up to be," and if the chemists are not humbugs; and if this science-farming is not all a muddle. Allow me to say it is not a muddle, but clear as day-light. Suppose you own a horse that you have never touched with a whip, and some friend advises you to buy a whip and use it; you find it produces quite a lively effect—so lively that you determine to shorten his feed; but after a month of this system the whip has less effect, and after two months, none at all. But for all this a whip is a good thing, and guano is a good manure. The man who asks if he had better use guano, might as well ask if he had better buy a whip for his horse. Get the whip by all means, but don't think, because you have a whip, that you don't need a bin-full of oats. Because you have guano don't neglect your barn-yard. Guano supplies just those constituents of a crop which are most commonly lacking in our Connecticut soils; and therefore it acts quickly and effectively; but guano does not in itself supply *all* the food which a crop demands; but it happens that most lands have a stock already of that other food, and the guano by promoting rapidity of growth, is constantly helping to diminish that old stock of food. Now this old stock of food is made up mainly of vegetable matter; and if you do not supply this vegetable matter from time to time, either from the barn-yard, or by turning in a green crop, you will find that your guano will work very much like a whip without the oats.

Thus, gentlemen, though science gives you truths, science

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needs your practical common sense for their illustration. You must not sneer at science; it fixes the measure of your bushel and the length of your yard-stick; science—palpitating on the wires yonder—tells you of every cloud on the horizon of Iowa, and fixes the price of your crop before your corn has flung its silken tassels to the air.

There will be failures in science as directed to agriculture, just as there are failures in scientific experiment as directed toward the mechanic arts. Accept new developments with caution; but do not decry them because they are new. Twenty years ago you would have smiled at the notion of manuring an acre of ground with the contents of a two bushel bag. Well, there will come other things stranger than this. In ten years time all flat lands of any considerable stretch will be mown by machinery and ploughed by steam. It must come; and how will you make your team of Devons hold their own, when Western lands are ploughed at the rate of an acre an hour?

Consider your chances fairly; put your brain to the work; if you can not rival these Western men in wheat-raising, try something else; if not in corn, try something else. God never lent us this land for no crop; God never intended we should starve in the cropping of it.

But by the sweat of a man's brow or brain, must that crop be fertilized: and there is no fertilizer in the world like it.

The whole tendency of improvement in agriculture, as in the mechanic arts, is to diminish the labor of the hand, and to increase the labor of the brain—to depreciate the animal, and to elevate the mental growth in us. Back-bone is a good thing, but brain is a better thing. Ingenuity is showing its accomplishment more and more in the field. The mowing-machine is a fixed fact. Try as hard as you may, be as old fogyish as you will, you cannot compete with those muscles of iron and that heart of oak.

But we want more. We want a drill which shall lay down four or six rows of carrots, or turnips, or corn, and dress them with a sulphate, and cover them and roll them, all at a single bout. Where land is level and in a proper state of cleanli-

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ness, there is no reason in the world why a hand-hoe should be applied to a field-crop of corn or potatoes; the labor of the hand is too valuable, it must be saved for finer work; we must have implements not only for the planting and dressing of a potatoe crop, but for throwing it out cleanly and rapidly. And these things will come; cost of labor demands it; civilization demands it. And it will come all the sooner, the more you apply your own minds to the need, and make your demand upon the inventive energies of our mechanics, persistent and serious. Believe, and act upon the belief, that we have as full a title to that inventive energy, as the manufacturer. Is it not as desirable to feed the poor cheaply as it is to clothe them cheaply? And if manufacturers are the clothiers, are you not the feeders of the race?

Thus far, gentlemen, I have spoken mainly of the economical aspects of farming; for if a business will not pay for the labor, the devotion, the system, the mind and the energy that you give to it, 'tis a poor business, and the sooner we abandon it the better.

But after all, there is something beside money in the world; I might say, in these times, there is a good deal beside money; and a great deal that is worth having.

It is a good thing to rear a crop which shall net you $500 or a $1,000 a year; but it is a better thing to rear a crop of ideas which shall net you moral and mental elevation; which shall fit you for the place we all hold, as part and parcel of this great Republican experiment. Live down with all your heart, and all your mind, and all your soul, that old brutal notion that a farmer must needs be uncouth, and unkempt, and unsocial, and ignorant. There may have been excuse for it in the old days when you lived far from the world, when your intercourse with cities was doubtful and infrequent; but now, gentlemen, by that little thread of iron hanging yonder, you are brought into immediate and electric contact with the great heart of humanity; you feel its throbs, pulse by pulse, in every fibre of your being. I do not say that you may track every fashion of the hour; I do not say that you may keep posted in the millinery of cities;

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if your ambition lies in that direction, pray go to the cities; we can spare you in the country. But what I do say is, that wherever you may live in this little State, lying between the great twin-cities of the North, the buzz of civilization is singing always in your ear. Away in your potato fields the trilling wires are discoursing progress over your head, and to the most distant corner of your woodland will come the rumble of the locomotive bringing its echoes of a Nation's tread.

Have your newspapers and read them; have your books and read them. Don't keep your boy at corn-shelling through the winter nights and the rainy days. He can do better things; you can do better things. Make your home a place that he will love, and that you will love, and that your daughters will love. Do not steel your heart against the flowers and the trees. They are God's messengers to refine you, and to decorate your energy with sentiment.

You shall not bluff me off by saying you care nothing for looks; you do care for looks; you always have cared for looks. For what else did you, who need only a small house, build one of two stories, and set it off with white clapboards and with green blinds, and perhaps a cupola? For what else, in the days that went before your marriage with that very respectable woman, your wife, did you prig before your glass, and twig at your shirt collars?

Aye, we all care for looks, each man in his way. But I would entreat you to give less heed to the shirt-collars, and more to the flowers that enliven home; less to the green blinds and the cupola where you never go, and more to the books and pictures about your family room. Do not build keeping-rooms to go in once a year; do not stifle yourself in small kitchens for the sake of showing up a shabby genteel parlor, once a month to your parson, or to the kindly gossips of your sewing society. Make your living room the largest, the sunniest, the most cheerful of your whole house. Let the winter's noon stream into it, warm and golden. Let the feathery tufts of grasses, and the flaming boughs of Autumn, which your daughters' hands have gathered, rustle and glow upon the mantel. Let there be pictures on the

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wall, which shall keep ever in your eye their lessons of Faith, lessons of Courage, lessons of Charity. Make it altogether such a place as your friends shall delight to linger in: and your children's hearts cleave to—fondly—always! Let there be no sham about your house; rooms you do not want; blinds you never open or shut; cupolas which have no use. These things are as arrant and abominable affectations as any coxcombery of cities. Let all your home-furnishings and surroundings be typical of comfort, typical of order, typical of refinement.

Do not teach your daughters French, or the thrumming of a piano, until they have learned to weed a flower-bed, and to use a side-saddle. And if any of those daughters have come up here to-day, I would say to them, with all respect, do not be ashamed of your sun-bonnets and garden-baskets. Bring down from the woods the prettiest of the wild-flowers and domesticate them at your door. Cultivate familiarity with the birds; scorn with your utmost scorn those miserable bipeds, who for want of nobler enemies, wage war upon the blue-birds and robins of spring. Use your pencil freely in sketches from nature; give hours of study to your botany; and you will find that these hearty, healthful occupations will give larger mental resources, and a truer refinement, than all the French smattering and piano playing, and flimsy novels in the world.

Gentlemen, I rejoice, and rejoice with you, that we are planted where we are, among the hills and boulders of Connecticut. I rejoice in that very roughness which shall quicken our ingenuity, and in those rocks which must be fused, and blasted, and dispersed, as they have been these many a year by our own dominant energy. I do not envy, in this comparison, the South—her golden glories and her tropic luxuriance. I do not envy the West—her wide reaches of billowy verdure, and her spray of flowers tossing in the wind. I love, and I trust you love, the State we live in; love its scattered school-houses; love its church-spires lighting every landscape; love its ever-during hum of civilization; love its near

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dash of ocean, whose other and balancing waves are lapping to-day upon the shores of England.

Gentlemen, we are living now under a deep cloud; but I know of no spot of country over the wide earth, where such a cloud would throw a lighter shadow than upon the farm-homes of Connecticut. No bank-pressure, thank God! can arrest the crystal showers of heaven; no panic of Wall street can stay the appointed order of the seasons!

The promises that the Spring made you—did they come to protest even under the rains of Summer? And have not these latter golden days of Autumn redeemed them all? So in the Winter that is coming, and whose red writing of promise is on all the woods, the pine tree you have planted at your door, shall be a God's voice to you, and another promise—out from the snows—that He will bring again the gladness and the greenness of Spring.

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REPORTS OF JUDGES,

AND

Awards of Premiums,

AT THE

STATE FAIR IN BRIDGEPORT,

1857.

CLASS I.

NO. 1.—SHORT HORN BULLS.

The Committee on Short HornBulls would report, that the number submitted to their inspection was not large, but contained individuals highly creditable to their owners, and evincing that the efforts to introduce into the State this valuable race of cattle, are in the right direction. Nissequag, by Col. Morris' imported bull Romeo, exhibited by Messrs. Hill & Walker, is a fine animal; and Mr. Hitchcock's two year old bull, Balco Boy, uniting in himself some of the best strains of blood ever imported, combines in a high degree, fineness of bone and superior handling qualities, with the requisite weight and constitution. The Yearling Bulls exhibited by Mr. Hitchcock and Mr. Beach, were very promising animals, as were also the Calves shown by Mr. Hitchcock and Mr. Cowles.

We submit the following report of awards of premiums:

Hill & Walker, Bridgeport, for "Nissequag," three years old, first premium, - - - - - - $25

Thomas Cowles, Farmington, "Prince of Orange," five years old, second premium, - - - - - 15

Thomas Cowles, Farmington, "Napoleon," three years old, third premium, - - - - - - 10

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Bulls, two years old.

George C. Hitchcock, New Preston, "Balco Boy," first premium, - - - - - - - $20
George C. Hitchcock, New Preston, "George Washington," second premium, - - - - - 12
Frederick and Chauncey Deming, Farmington, third premium, 5

Yearling Bulls.

George C. Hitchcock, New Preston, "Belvidere," first premium, - - - - - - - 15
Abijah H. Beach, Kent, second premium, - - - 10
George C. Hitchcock, New Preston, "Monarch," third premium, - - - - - - 5

Calves.

George C. Hitchcock, New Preston, "Rocket," first premium, 5
Thomas Cowles, Farmington, second premium, - - 3

Signed, HENRY M. SWIFT.
JASPER B. BREWSTER.
SETH F. HOPSON.

NO. 1. (A.)—SHORT HORN COWS.

The Committee on Short Horn Cows respectfully report. After careful investigation and comparison, we submit the following awards of premiums, viz:

Thomas Cowles, Farmington, cow, "Pride of the Meadow," first premium, - - - - - $25
Thomas Cowles, Farmington, "Moss Rose," second premium, 15
C. H. Wells, East Windsor, "Brunette," third premium, 10

Heifers, two years old.

George C. Hitchcock, New Preston, "Myrtle, 2d," first premium, 20
George C. Hitchcock, New Preston, "Belle, 2d," second premium, - - - - - - 12
Thomas Cowles, Farmington, "Elizabeth," third premium, 5

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Yearling Heifers.

George C. Hitchcock, New Preston, "Lady Washington," first premium, - - - - - - $15
George C. Hitchcock, "Grace, 2d," second premium, - 10
Thomas Cowles, Farmington, "Florence," third premium, 5

Signed, WILLIAM H. PUTNAM.
WILLIAM A. WOLCOTT.
JOHN E. COWLES.

NO. 2.—DEVON BULLS.

Your Committee beg leave to report as follows. There were twenty-eight Bulls presented for examination. All the animals presented were of great excellence, doing credit to their owners as well as maintaining the reputation of the Devon breed of cattle. We have to recommend the awards of premiums as follows:

Bulls, three years old and over.

Stanley Griswold, Torringford, "Robin," first premium, $25
James M. Munson, Watertown, "Orphan Boy," second premium, - - - - - - - 15
William Scoville, Watertown, third premium, - - - 10

Bulls, two years old.

B. H. Andrews, Waterbury, "Hannibal," first premium, - 20
Jacob N. Blakeslee, Watertown, "Matchless," second premium, 12
Hill & Walker, Bridgeport, "Wawayanda," third premium, 5

Yearling Bulls.

Wells Brothers, New Britain, "New Britain, 2d," first premium, 15
A. A. Hotchkiss, Sharon, 2d premium, - - - 10
Linsley Brothers, West Meriden, third premium, - - 5

Bull Calves.

James A. Bill, Lyme, "Colonel Fremont," first premium, - 5
Wells Brothers, New Britain, "Charter Oak," second premium, 3

Mr. Levi Coe presented a splendid Bull, four years old; Mr. J. A. Bill, Lyme, showed a beautiful animal two years old, perfectly

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formed, but lacking in size. Both these animals deserve honorary mention.

Signed, JOHN F. BEARD.
D. F. GULLIVER.
ALANSON LYON.

NO. 2. (A.)—DEVON COWS.

Your Committee report the following awards, viz:

Cows, three years old and over.

Linsley Brothers, West Meriden, "Nelly," first premium,	$25
Jacob N. Blakeslee, Watertown, "Jenny Lind," second premium,	15
S. & L. Hurlbut, Winchester, "Fair Maid," third premium,	10

Discretionary.

Linsley Brothers, West Meriden, "Fairy, 2d,"	5
Stanley Griswold, Torringford, Cow,	4
Wells Brothers, New Britain, "Fancy,"	4
B. H. Andrews, Waterbury, "Gipsey Maid,"	4

Heifers, two years old.

S. & L. Hurlbut, Winchester, Heifer, "Darling," first premium,	20
Linsley Brothers, West Meriden, Devon Heifer, "Minnehaha," second premium,	12
B. H. Andrews, Waterbury, Heifer, "Florence," third premium,	5
Stanley Griswold, Torringford, discretionary premium,	3
Joseph Blakeslee, Watertown,	3
Stephen Atwood, Watertown,	3
John T. Andrew, West Cornwall, "Cherry, 2d,"	3

Yearling Heifers.

S. & L. Hurlbut, Winchester, Heifer, first premium,	15
Linsley Brothers, West Meriden, "Chance," second premium,	10
Stanley Griswold, Torringford, third premium,	5
Dayton Mattoon, Watertown, discretionary premium,	2
A. A. Hotchkiss, Sharon Valley,	2

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Heifer Calves.

Jacob N. Blakeslee, Watertown, first premium, - - $5
S. & L. Hurlbut, Winchester, "Beck," second premium, - 3
Joseph M. Munson, Watertown, "Rose," third premium, - 2

Signed, E. H. HYDE.
JOHN H. BISSELL.
MERRITT W. BARNES.

NO. 3.—HEREFORDS, AYRSHIRES AND ALDERNEYS.

Your Committee on Hereford, Ayrshire and Alderney Bulls and Cows, report as follows:

Of Herefords, there were none exhibited, and if there are any owned in the State they are unknown to your Committee.

Ayrshires were exhibited by Thomas Treadwell, of Farmington. His two year old Bull, "Jock," was considered a good animal of his kind. His Cow, Kitty, three years old, in rather moderate condition for one that so recently calved, bids fair for a respectable specimen of her class. Her Bull Calf, two weeks old, was of good shape, having ample room to grow. His name was Jock, 2d. There being no competitors, your Committee had no opportunity to judge of their comparative merit with other animals of their class. They therefore award to Jock the first premium, $15.00; to Kitty the first premium, $20.00; and to Jock, 2d, the first premium, $5.

There were entered on the book of your Committee some animals purporting to be Alderney and Ayrshire grades, which were considered of very doubtful origin, to say the least; but on the whole they concluded to recommend to Mrs. H. W. Green, of Bridgeport, a discretionary premium of $3.00 on a two year old Heifer.

A two year old Heifer was entered on our book as an Ayrshire, but not bearing the most distant resemblance to that choice breed of cattle, she was passed by without notice in our premium report.

Alderneys were exhibited by John Giles, of Woodstock, well known as a fancy breeder. His Bull, Captain Darling, 16 months old, is a Bull of unusual substance for one of his kind. His Cow and Heifer, with their mild, placid, intelligent, and we might add sweet

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ntenances, would win the admiration of any lover of the bovine race, could they see no other part of them; but their whole contour (with the exception of the face) is so forbidding to the eye of one accustomed to the rotundity of the short horns and the exquisitely beautiful finish of the Devon, that he would hardly consent to have one admitted among his herd. The rich quality of their milk, your Committee believe, is their chief recommendation—certainly not the quantity they yield. They have also been recommended for their easy keep, as being small consumers, but from appearances we (not having experience or seen a report of a test experimental trial) should not award them that quality. For it is a conceded point, that animals that are well formed consume less in proportion to their size than those that are ill-formed, and are also the hardiest and healthiest. Could not a cross with the beautiful Devon, of good milking strain, improve their appearance without essentially deteriorating the quality of their milk. As there were no other Alderneys beside Mr. Giles', we could not judge of their comparative merits except from our partial knowledge of other animals of the same class. We therefore award to John Giles the first premium on his yearling Bull, $10.00; his Cow Clara, three years old, $20.00; Heifer Dutchess, two years old, $15.

Signed, B. H. ANDREWS.
JAMES A. BILL.
SAMUEL DEMING.

NO. 4.—IMPORTED STOCK.

Your Committee on this class of stock report, that but few entries have been made. One Short Horn Cow exhibited by Mr. George C. Hitchcock, of New Preston, is the only animal of that breed exhibited, and is entitled to the first premium of $25. Three fine young animals of the Devon breed, owned and exhibited by those enterprizing gentlemen, Messrs. Linsley Brothers, of Meriden. These animals were selected from a lot of nine recently imported, and show great skill and judgment in the selection. Two of them are Heifers, the other a Bull—one only of the Heifers being entitled to a premium, the Committee award $15 to the Quartly Heifer.

The Bull is also well worthy a premium; to him we award the sum of $15. These animals are one year old. To Mr. Jacob N.

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Blakeslee, of Watertown, we award the first premium for his Devon Bull, "Norfolk," four years old, $25. To John Giles, of Woodstock, for the best Alderney Cow, "Zilla," four years old, $20. To the same gentleman for Alderney Heifer, "Lady Green," two years old, $15. To Gideon Thompson, of Bridgeport, for best Alderney Bull, two years old, $15.

Signed, H. R. COFFIN.
SHELDON LEWIS.
ALONZO WHITING.

No. 5.—GRADES, DURHAM CROSS.

The Committee on this class of stock respectfully recommend the following awards of premiums, viz.:

Cows, three years old and upward.

George Osborne, Reading, first premium, - - $20
Frederick and Chauncey Deming, Farmington, second premium, 12

Heifers, two years old.

Augustus Hamilton, West Hartford, first premium, - 15
Augustus Hamilton, " " second do. - - 10

Heifers, one year old.

Nathan Hart, Jr., West Cornwall, first premium, - 12
John M. Rose, Greenwich, second do. - - 8

Heifer Calves.

B. C. Lake, New Haven, first premium, - - 5

Discretionary.

Franklin Watson, New Hartford, Bull, - - 10
S. Durand, Wallingford, bull calf, - - - 4

Signed, E. A. PHELPS.
JESSE BANKS.
B. B. PLUMB.

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NO. 6.—GRADES, DEVON CROSS.

The Committee of Devon Grades respectfully report:

There were about thirty cows, two and one year old heifers, exhibited, or ten or twelve in each class. There were seven or eight very superior cows, either as milkers or stock animals. The three year old cow exhibited by Levi Coe, of Middletown, which drew the first prize, taking her in all her parts, udder, teats, and their position, her general aspect and size, in the opinion of the Committee can not be surpassed. In selecting for second premium, the Committee found it very difficult to satisfy themselves which was entitled to it, out of three or four. The two and one year old heifers were all very good animals, evincing good care and taste in breeding. The calves, many of them, were still with their dams, and sucking, and too fat altogether for stock animals.

The following premiums are awarded:

Cows, three years old and upward.

Levi Coe, Middletown, Cow, 3 years old, first premium,	$20
Stanley Griswold, Torringford, 5 years old, second do.	12

Heifers, two years old.

Jacob N. Blakeslee, Watertown, first premium,	15
James A. Bill, Lyme, "Lizzy," second do.	10
Lauren Tyrrell, Woodbury, discretionary do.	3

Heifers, one year old.

Wm. Scovill, Watertown, premium,	8
C. L. Crane, Monroe; Stanley Griswold, and L. A. Whiting, Torringford; and A. A. Hotchkiss, Sharon Valley—each,	3

Heifer Calves.

Truman Kellogg, New Hartford, first premium,	5

Discretionary Premiums.

Truman Kellogg, New Hartford, 2 year old bull,	3
E. H. Carrington, Bethany, 1 year old bull,	3
James A. Bill, Lyme, two calves, (very fine specimens,)	3

All of which is respectfully submitted.

Signed, R. B. CHAMBERLAIN.
JABEZ P. MANNING.
T. A. MEAD.

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NO. 7.—NATIVE STOCK.

The Committee on Native Stock beg leave to report, that they have examined the different animals offered for their inspection. These made a very creditable appearance, and compared favorably with many of the grades and pure bred stock.

Some of the animals in this class showed unmistakably signs of foreign blood, and were excluded from competition. The following awards are submitted:

To Eliakim Hough, of Bridgeport, first premium, - $20

Mr. Hough makes the following statement in reference to this Cow:

"She is nine years old. Calved March 23d, 1856. Has been milked since that time. Is now farrow, and gives ten quarts or more of milk each day. She has given eighteen quarts per day in the best of the season. I shall let her remain farrow as long as she does well, for she is the best cow I ever owned."

Proofs of her pedigree were given to the satisfaction of the Committee.

To Alvah Gregory, Stepney Depot, second premium, - $12

Mr. Gregory states that this cow has gone farrow two years, since April 14th, 1855, at which date her calf was sold at six days old. From April 14th, 1855, to April 14th, 1856, besides furnishing milk for a family of two persons, of which no account was made, 483½ quarts of milk were sold at four cents per quart, making $19.34, and 417½ pounds of butter were made. That part of it which was sold, averaged $23\frac{15}{100}$ cents per pound, making $96.65. Total of yield, $115.99. The feed of this cow, during the grazing season, was gained in a pasture, and during the remainder of the year she was fed with hay and buckwheat bran, the latter amounting to about 1700 pounds. She was allowed also, to drink her own milk after being skimmed, which she generally (not always) did. Between April 14th, 1856, and the 1st of February, 1857, she furnished milk for two persons in family, and made 320 pounds of butter; also made during the month of June, 1857, 28 pounds of butter. She has been milked constantly since April 14th, 1856, until within the last six weeks.

The pedigree of said cow I have personally known for thirty years

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past, and she has not to my knowledge the least taint of foreign blood.

She is now entirely dry and in very high order. To all of the foregoing statements I hereby attest.

Signed, ALVAH GREGORY.

To Edward Meloy, Bridgeport, third premium, - - $8

No definite statement accompanied the cow of Mr. Meloy, as to the quantity of milk or butter produced by her, but from several witnesses she was proved to be a superior cow.

Heifers, two years old.

Thomas A. Mead, Greenwich, first premium,	- -	$15
B. F. Jones, Wallingford, second do.	- -	8
Ely Lewis, Huntington, third do.	- -	3

Heifers, one year old.

John T. Andrew, West Cornwall, first premium,	- -	10
Nathan Hart, Jr., West Cornwall, second do.	-	6
Roswell Humiston, Seymour, heifer calf,	- -	5

Bulls, one year old.

Julius Williams, Wallingford, and Ezra Austin, Bridgeport, each, 5

Signed, R. B. MARTIN.
C. E. BOOTH.
GEO. OSBORN.

NO. 8.—WORKING OXEN, 6 YEARS OLD AND OVER.

Committee No. 8, on Working oxen, six years old and over, respectfully report, that fourteen pairs of very superior oxen came under their inspection. These with the extensive show of other ages of working oxen and steers, with which the late fair was honored, formed a show unequaled in numbers and combination of good qualities, by any similar show in the State or nation, and your Committee are of the opinion that Uncle Sam, notwithstanding his numerous farms, would have to draw largely from his Connecticut plantation to excel it in the future.

The same difficulties encountered by former committees on this class of Working Oxen, presented themselves to your present Com-

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mittee, which will be more fully developed in the subsequent remarks and suggestions.

The raising and training of Working Oxen is a business followed by a large class of our Connecticut farmers. From the age of three years old they are made to do the work of the farm, which is usually of such a nature as not to impede their growth; but develops their strength and perfects their training, and they are generally sold before arriving at maturity, finding a market in the eastern counties of New York State; while not a few find a more distant market, when they grace the broad acres of some amateur in agricultural pursuits; and a small number of the heavier and coarser oxen are retained within the State, where heavy but not long continued, draft is the object. These often and usually are kept in so high flesh, that in case of injury by accident or otherwise, they would honor a butcher's stall, and are of first quality of beef. A large part of this class under consideration, were of this description. While few comparatively are exhibited by those who raise or keep them for ordinary farm-work, enough, however, to raise the question as to the distribution of premiums.

The object of the Society is to encourage the raising of the best work oxen. The question is, does giving the premium to exhibitors who have purchased these oxen at the time of maturity to use for heavy draft, which is not of so long continuance as to interfere with their keeping in a condition fit for the butcher's knife at any moment, promote this object, or do they more properly belong to those in a good working and growing condition. Evidently the latter more nearly represents Connecticut working oxen than the former. But it is difficult to divest the mind of the idea that the final result is the test, viz: which will make the most beef, forgetting that it is the character as working oxen first, and then the best beef at the least cost per hundred weight to the producer, next; and not which will make the most without regard to what it has or will cost.

But in the absence of any instructions by which to be governed, we were unanimous in awarding the premiums to the *fat oxen*, feeling at the same time that the real representatives of Connecticut industry were subjected to an unfair competition.

In order to obviate this difficulty, your Committee would suggest the propriety of establishing a scale not exactly of points but of qualities. Or, if you please, a standard of perfection; and those having the highest number, or evening nearest the standard, to be entitled to the several premiums; and none to take premiums unless they

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come within a certain range of the standard, adopting the same principle as with field crops.

These qualities should include handling, size, match, training under the whip, and to draft, form or general appearance, and color.

In closing this report, your Committee would recommend to County and State Societies, and the farmers themselves, the utmost diligence in raising the standard of working oxen, so that Connecticut may continue to hold the preeminence in this branch of industry, and maintain her high reputation which is alike honorable and profitable to all concerned.

We award the premiums as follows, viz:

Middlesex Quarry Co., Portland, 6 years old, first premium,		$20
John Barnard, Hartford, 7 years old, second	do.	15
John Barnard, Hartford, third	do.	10
Zalmon B. Bradley, Fairfield, 6 years old, fourth	do.	5

Discretionary.

J. T. Andrew, West Cornwall,	3
Jacob N. Blakeslee, Watertown,	3
L. A. Mills, Fairfield,	3
David A. Wilson, Harwinton,	3
Brainard & Company, Portland,	3

All of which is respectfully submitted.

Signed, NATHAN HART, Jr.
EDWARD HICKOX.
A. W. KNAPP.

NO. 9.—WORKING OXEN, 5 YEARS OLD.

The Committee on this class of Oxen have attended to the duties assigned them, and submit the following report. The premiums are awarded as follows, viz.:

F. W. Russell, Portland, first premium,	$20
S. & L. Hurlbut, Winchester, second do.	15
Richard W. Griswold, Torringford, third do.	10
T. L. Hart, West Cornwall, fourth do.	5

Signed, JOHN C. AMBLER.
LORENZO HALL.
JOHN A. HEMENWAY.

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NO. 10.—WORKING OXEN, 4 YEARS OLD.

The Committee to which was assigned this class of cattle, respectfully report that the whole stock exhibited was very fine, and they regret that it was out of their power to award more premiums. After careful investigation the following awards are submitted, viz.:

Lewis A. Thrall, Torrington, first premium,	- -	$20
Anson Colt, Torrington, second	do. - -	15
Stephen Atwood, Watertown, third	do. - -	10
Loren Carpenter, Middletown, fourth	do. - -	5
Jacob N. Blakeslee, Watertown, discretionary premium,	-	3

Signed, WILLIAM H. HICKOX.
AARON SANFORD, JR.
LAUREN TYRREL.

NO. 11.—STEERS, DURHAM GRADE.

The Committee report the following awards:

D. W. Pierce, Cornwall, Steers, three years old, first premium,	$12
B. F. Jones, Wallingford, Steers, three years old, second do.	8
Charles S. French, Fairfield, Steers, two years old, -	4
Frederick & C. Deming, Farmington, Steers, one year old, first premium, - - - - - - -	6

Signed, DAVID BEECHER.
W. G. BOOTH.
W. C. MARSH.

NO. 12.—STEERS, DEVON GRADE.

Your Committee on Devon Grade Steers, having attended to the duties of their appointment, offer the following report:

The show of Steers three years old was good. There were several pairs so equally meritorious, that it was hard discriminating. The show of those two and one years old was not so good. If we except one or two pairs that were worthy steers, the others were second class animals. There was but one pair of calves entered; those

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were very fine ones, and well worthy of notice. Your Committee also had shown them a pair of Native twin steers, two years old, by Master S. B. Osborn, of Reading, that were very pretty, and which we thought proper to recommend to the notice of the Executive Committee.

The Committee report the awards of premiums as follows, viz.:

Three years old.

J. N. Blakeslee, Watertown, first premium,	$12
Henry E. Judd, Watertown, second do.	8
Chandler Judd, Watertown, third do.	5
William H. Hickox, Wilton, discretionary premium,	5
Lauren Tyrrel, Woodbury, do. do.	5

Two years old.

Stephen Atwood, Watertown, first premium,	8
William H. Hickox, Wilton, second do.	6
Truman Kellogg, New Hartford, third do.	4

One year old.

C. S. Crane, Monroe, first premium,	6
Levi Coe, Middletown, second do.	4

Steer Calves.

Sacket G. Benham, Hamden, first premium,	5

Signed, CHARLES T. CHATFIELD.
WILLIAM NASH.
EDWARD HICKOX.

NO. 13.—TEAM OF OXEN AND STEERS.

The Committee have to report but one entry under this head, by Mr. Jacob N. Blakeslee, of Watertown; to him we have awarded the first premium of $20.

Signed, JOHN BARNARD.
W. H. BIBBINS.

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NO. 14.—MILCH COWS.

The Committee on Milch Cows beg leave to say, that the duty, though not arduous, has been extremely pleasant; and the only regret is found in the fact that after the Society had offered very liberal premiums to encourage this most important element in good agriculture, so few have been induced to turn their attention to it. And your Committee cannot pass over this exhibition without holding up before the farmers of Connecticut the wide contrast between the animals presented for inspection, and the ordinary average of Milch Cows in the State, and we sincerely urge all persons engaged in this department of husbandry, to count the profits on a Cow making four or five pounds of butter per week, and one making sixteen or eighteen pounds per week. Your Committee hope the Society will continue their liberality towards this department for the future. The Committee have awarded to A. & T. Jerome, the first premium of $25.

Native Cow. This Cow was 8 years old last June; calved the 16th day of January, 1857. From the first day of February to the 10th inst., made 22 pounds and 4 ounces of butter; gave during the 10 days of trial, 180 quarts of milk, that weighed 370 pounds. The feed given her was hay, 4 quarts of rye bran, 1 quart of corn meal, and 1 quart of oil meal.

In the month of June, from the 6th to the 16th, made 19 pounds and 4 ounces of butter; gave 167 quarts of milk, that weighed 354 pounds; feed, common pasture only. She calves again the 1st of December.

A. H. JEROME.
S. P. GREGORY.

Bloomfield, October 12th, 1857.

And to A. & T. Jerome, the second premium of $15.

Native Cow. This Cow was 4 years old last June; calved the 1st day of June, 1857. From the 7th to the 17th of June, made 18 pounds and 14 ounces of butter; gave 163 quarts of milk, that weighed 346 pounds; feed common pasture only.

From the 7th to the 17th of September, made 17 pounds of

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butter; gave 149 quarts of milk, that weighed 320 pounds; feed, grass only.

A. H. JEROME.
S. P. GREGORY.

Bloomfield, October 12th, 1857.

And the Committee would recommend a discretionary premium of $10, to P. D. Crosby, for his Durham Grade Cow.

Grade Durham Cow. First ten days in June, 529 pounds of milk; 264 quarts of milk; 24 pounds of butter.

First ten days in September, 358 pounds of milk; 179 quarts and one pint of milk; 14½ pounds of butter.

Skim the milk just as it is about turning, and let the cream be free from milk. In hot weather, churn every day; when the weather is cooler, every other day; put no water in the churn, neither wash the butter; salt as taste and judgment dictate, and be sure to work out all the butter-milk.

Said Cow is 7 years old past, and calved April 7, 1857. During the trials was fed on grass and hay, grass being very poor in September.

We hereby certify that the above statement is correct.

P. D. CROSBY.
R. E. CROSBY.

Signed, RANDOLPH LINSLEY.
A. A. SPAULDING.
JOHN BULKLEY.

NO. 15.—FAT CATTLE.

We, the undersigned, having been appointed a Committee on Fat Cattle, would beg leave to submit the following report. We have attended to our duties, and have occasion to congratulate the Society on the improvement that has been made in this class of Cattle since the first meeting of the Society. All the Cattle of this class entered and shown your Committee, were Cattle of great merit; and have done great credit to their owners. Your Committee, however, regret as at former meetings of the Society, that so limited a number of this class of animals have been presented

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for exhibition, and hope that our future State Fairs will be favored with a greater number of this valuable and useful class of animals.

Fat Oxen, four years old and over.

Romanta Wells, best pair Oxen, seven years old, first premium, $20
Frederick and Chauncey Deming, Farmington, second premium, 15
Ira Gregory, Danbury, pair Oxen, third premium, - 10
Thomas A. Mead, Greenwich, Ox, seven years old, first premium, 10
Thomas A Mead, Ox, eight years old, second premium, - 6

Cows.

George C. Hitchcock, New Preston, Fat Cow, six years old, first premium, - - - - - - 10

Steers.

Thomas A. Mead, Greenwich, Fat Steer, three years old, first premium, - - - - - - - 8
Thomas A. Mead, Greenwich, second premium, - - - 4

Signed, PELEG C. CHILD.
ANDREW BARNES.
WILLIAM C. OSGOOD.

NO. 16.—CATTLE FROM OTHER STATES AND CANADA.

No awards made.

CLASS II. Horses and Mules.

NO. 17.—STALLIONS AND MARES OF ALL WORK, SEVEN YEARS AND OVER.

The Committee on this class of Horses have attended to the duties assigned them. Ten Stallions were entered, and nine Mares with foal at foot. Six Stallions only were exhibited, and six Mares. After such examination as we have been able to make, we have made the following awards:

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George T. Hoadley, Plymouth, "Plymouth Rock," seven years old, first premium, - - - - - - $25
James S. Cole, Easton, "Mambrino," nine years old, second premium, - - - - - - - 20
Gilbert White, New Milford, "Black Hawk," eight years old, third premium, - - - - - - 10
James S. Selden, Haddam, "Valentine," discretionary premium, 5
Joel Riggs, Oxford, "Sir Henry," seven years old, discretionary premium, - - - - - - - 5
Levi Coe, Middletown, "Young Duke," seven years old, discretionary premium, - - - - - - 5

Mares seven and over, with foal at foot.

Geo. W. Graves, Sherman, mare seven years old, first premium, 20
Linsley Brothers & Tredwell, West Meriden, mare, "Betts," twelve years, second premium, - - - 15
Homer S. Sackett, Warren, Litchfield County, Mare, twelve years old, third premium, - - - - 10

All of which is respectfully submitted.

Signed, J. WILCOX, 2ND.
JAMES H. HYDE.
P. D. CROSBY.

NO. 18.—STALLIONS AND MARES OF ALL WORK, FOUR YEARS AND UNDER SEVEN.

The Committee submit the following awards:

Linsley Brothers, West Meriden, "Pathfinder," six years old, first premium, - - - - - - $25
H. Hamlin, Canton, "Nicholas," four years old, second premium, 20
S. Atwater, Plymouth, English Morgan Stallion, six years old, third premium, - - - - - - 10

Mares four and under seven years old.

B. W. Hamilton, West Hartford, "Jennie Morgan," six years old, with foal at foot, first premium, - - 20
B. T. Jones, Wallingford, Mare, four years old, with foal at foot, second premium, - - - - - 15

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Marshall Straight, New Preston, Mare, six years old, with foal at foot, third premium, - - - - - $10

Signed, WILLIS MERRILL.
A. S. KNOX,
ALANSON LYON.

NO. 19.—STALLIONS AND MARES, THREE YEARS OLD.

The Committee on three year old Stallions and Mares of all work beg leave to report, that after a careful examination of the horses entered, of all of which they would speak in the highest terms of commendation, they award the following premiums:

Wm. J. Mallory, Suffield, Lone Star, Jr., $20
Wm. J. Ives, Meriden, "Meriden Black Hawk," second best, 15
Joseph R. Bennett, New Preston, Black Hawk Stallion, "Wild Darrell," three years, third best, - - - 10
A. B. Coe, Middlefield, best mare, - - - - 15
Silas & Seth Hunt, Huntington, second best, - - 10

Signed, L. M. BAILEY.
LEMUEL HURLBUT.
L. A. MILLS.

NO. 20.—STALLIONS AND MARES, TWO AND ONE YEARS OLD.

The Committee on this class commend the animals belonging to the parties named, as worthy of the respective premiums.

Stallions.

Hatsel Penfield, Portland, Stallion, 2 years old, first premium, $12
Linsley Brothers, West Meriden, "Col. Fremont," 2 years old, second premium, - - - - 8
Chas. Parker, Meriden, Black Hawk colt, 1 year old, "Alexander," first premium, - - - - - 8
Jas. M. Munson, Watertown, Black Hawk and Morgan colt, 1 year old, second premium, - - - - 6

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Mares.

Jas. M. Munson, Watertown, Gifford Morgan mare, "Gifford Maid," 2 years old, first premium, - - - $10

David Wakelee, Trumbull mare, "Mike," 2 years old, second premium, - - - - - - - 6

E. L. Penfield, Black Rock, "Laura," 1 year old, first premium, - - - - - - - - 6

Jos. H. Bennett, New Preston, 1 year old, second premium, 4

Signed, B. H. ANDREWS.
MOSES LYMAN.
D. F. GULLIVER.

NO. 21.—DRAFT STALLIONS AND MARES.

The Committee on Draft Stallions and Mares respectfully report: There were but two entries of Stallions, and six entries of Mares with foal at foot. Four only of the Mares were shown.

The awards, as follows, are submitted:

P. F. Barnum, Bridgeport, "Clyde Briton," 9 years old, first premium, - - - - - $25

Street Jones, Wallingford, draft mare, six years old, first premium, - - - - - - - 20

Geo. W. Graves, Sherman mare with foal at foot, second premium, - - - - - - - 15

Stephen Brigner, Falls Village, mare with foal at foot, third premium, - - - - - - 10

Signed, JOSEPH P. BREWSTER.
J. WILCOX, 2ND.
SETH HURD.

NO. 22.—MATCHED HORSES FOR THE CARRIAGE AND ROAD.

We have viewed about twenty pairs of Matched Horses. Most of them valuable animals; and we only regret the finances of the Society are such that we can not award several discretionary premiums.

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Carriage Horses, sixteen hands and over.

S. N. Hall, Portland, first premium, - - - - $20
Theodore Payne, Stamford, second premium, - - 12

Fifteen hands and under sixteen.

T. J. Coe, West Meriden, first premium, - - - 20
A. S. Knox, of Bethlehem, and Orrin Benedict, of Bethel, for their gray and bay teams, each, - - - - 12

Under fifteen hands.

S. T. Beach, of Seymour, - - - - - - 12
Walter G. Booth, of Trumbull, - - - 8
Wm. H. Doan, of Essex, for his pair Ponies, four years old, 8

The pair of Fancy Matched Horses, owned by M. H. Griffin, of Middletown, were a superior pair of Roadsters, passing around the track in its moist state, in three minutes twenty seconds to the mile twice while timed.

We recommend a premium to Mr. Griffin; but leave the matter in the hands of the Executive Committee.

We would particularly notice the pair of Black Colts owned by Linsley Brothers, of West Meriden; the Sorrel Colts of Benjamin Sumner, of Woodstock; and a valuable pair of Bay Carriage Horses, of H. J. Beers, of Fairfield; and the Bay Horses of John H. Billings, of Bridgeport, and H. Lyon.

The Executive Committee award to M. H. Griffin, $10 for his horses.

Which is respectfully submitted.

Signed, M. LYMAN.
WM. G. BUELL.
DANIEL F. GULLIVER.

NO. 23.—MATCHED DRAFT HORSES.

The Committee on Draft Horses report the following awards on Matched Horses:

Thos. Cowles, Farmington, first premium, - - $20
W. H. Putnam, Brooklyn, five and six years old, second premium, - - - - - - - 12
Stephen Hoyt and Son, New Canaan, third premium, - - 8

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One single Draft Horse was entered, which is a very fine animal. No premium being offered in the schedule, the Committee recommend a discretionary premium of five dollars to Alanson Lyon, of Redding.

All of which is respectfully submitted.

Signed, JOHN E. COWLES.
J. A. HEMENWAY.

NO. 24.—GELDINGS AND MARES, OVER 4 AND UNDER 11 YEARS.

The Committee have attended to their duties, and have to state' the Horses in this class are superior, and most of them worthy of note. M. H. Griffin, Esq., of Middletown, exhibited a very superior brown mare, which showed fine speed, and contributed much to the interest of the exhibition. After looking over the stock carefully have concluded to award:

Geo. Keeler, Bridgeport, first premium, - - $20
Willis Merrill, Waterbury, second do. - - - 15
Enoch Coe, Middletown, third do. - - 10

All of which is respectfully submitted.

Signed, J. WILCOX, 2ND.
F. W. RUSSELL.
GEO. R. WILSON.

NO. 25.—GELDINGS AND MARES FOR FAMILY USE, 11 YEARS OLD AND UNDER 20.

The Committee ask leave to report the following awards, viz.:

Sharon Bassett, Derby, Gelding, "Charlie," 15 years old, first premium, - - - - - $15
Henry Hickox, Woodbridge, Mare, 11 years old, second premium, 10

Over 20 *years old.*

Alfred Todd, New Haven, Gelding, 23 years old, first premium, 10

All of which is respectfully submitted.

Signed, JOHN C. AMBLER.
PETER H. MILLS.
GEORGE ATWOOD.

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NO. 26.—GELDINGS AND MARES.

The Committee on Geldings and Mares for family use, four years old and under, respectfully report the following awards:

Four years old.

W. E. Booth, Danbury, best Gelding, first premium, - $12
Edwin Hoyt, New Canaan, second best Gelding, second premium, 8

Three years old.

Lorenzo Hall, Bridgeport, best Gelding, first premium, - 10
Gideon Thompson, Bridgeport, 2d best Gelding, second premium, 5

Two years old.

B. W. Hamilton, West Hartford, best Gelding, first premium, 10
Geo. W. Hayes, Bridgeport, 2nd best Gelding, second premium, 5

A very nice *blood horse*, owned by J. S. Selden, of Haddam, would have been awarded the *first premium* in the *above list*, but for an *error* in the *entry*. The Committee would therefore respectfully recommend a *discretionary* premium of *six dollars*.

All of which is respectfully submitted.

Signed, C. C. THURSTON.
ALANSON LYON.
JAMES S. SELDEN.

NO. 27.—ROADSTERS.

The Committee on Roadsters would respectfully report nineteen horses examined by them, and award:

F. W. Russell, Portland, first premium, - - - - $20
R. S. Ogden, Kent, second premium, - - - 15
Alanson Lyon, Redding, third premium, - - - 10
Edward Smith, Litchfield, fourth do. - - - 5

They would also recommend a gratuity of eight dollars to Benjamin Deforest, Waterbury; also a gratuity of five dollars to N. Wheeler, of Bridgeport; it being their design to have shown them

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with the Family Horses, and therefore would not come regularly under this class.

All of which is respectfully submitted.

Signed, JOHN A. HEMENWAY.
JEDEDIAH WILCOX, 2ND.
M. H. GRIFFIN.

NO. 28.—FOUR IN HAND TEAM, &c.

Your Committee, as newly constituted, is as follows: Henry Sanford, Bridgeport; Isaac E. Booth, Trumbull; Joseph Blakeslee, Watertown;—respectfully submit their report.

To Dr. E. B. Middlebrooks, Bridgeport, best four-in-hand team, first premium, - - - - - - $10

To Henry E. Judd, Watertown, best Lady's Saddle Mare, first premium, - - - - - - - 12

To George Merchant, New Haven, second best Lady's Saddle Horse, - - - - - - - 8

Of the seven Lady's Saddle Horses entered, but four were shown. A Morgan Horse, entered by Richard Welton, Waterbury, showed many fine qualities, but was evidently out of condition. A Lady's Saddle Mare, five years old, (Morgan and Zenith stock,) entered by Henry E. Judd, Watertown, has many fine points, and good action. But one "Four-in-Hand team" was entered, to which your Committee has awarded the first premium.

No "Tandem teams" were shown, and but one entered.

Signed, HENRY SANFORD.
ISAAC E. BOOTH.
JOSEPH BLAKESLEE.

NO. 29.

COMMITTEE'S TENT, STATE FAIR GROUND, Oct. 15, 1857.

The Committee on "*Horses from without the State,*" were gratified at the exhibition of this class of animals. Every animal exhibited was alike creditable to its owner and the occasion.

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After a careful examination the Committee award as follows:

For the best Stallion, three years old and upwards, $20 premium to "Black Hawk," exhibited by A. W. Swift, of Scarsdale, Westchester Co., New York.

For the best Mare, three years old and upwards, $20 premium for a black mare, exhibited by W. H. Smith, of the city of New York.

For the best Stallion of all work, three years old and upwards, $20 premium to Ed. Holly, exhibited by C. Tompkins, of Scarsdale, Westchester Co., New York.

For the best Mare of all work, three years old and upwards, $20 premium for a bay Mare exhibited by Peter C. Jones, of Albany, New York.

The sorrel Horse entered by H. Hector, of Springfield, Mass., was withheld for reasons unknown to the Committee.

L. B. Miller, Esq., of Great Barrington, Mass., exhibited a pair of matched carriage Horses, which would do credit to any State or National Exhibition of Horses. They were perfectly manageable, and moved elegantly on the track. The Committee can only regret that no premium was offered for Horses of this description.

Respectfully submitted.

JAMES T. PRATT.

NO. 30.

No Mules or Jacks were exhibited.

CLASS III.

Sheep, Swine and Poultry.

NO. 31.—LONG WOOL SHEEP.

The Committee on Long Wool Sheep respectfully submit the following report. There are ten competitors for premiums in this class, and the stock shown is very fine. After a careful examination we have awarded the following premiums:

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George C. Hitchcock, New Preston, best Buck, three years old and over, - - - - - - - $10
Wm. A. Wilcox, Lakeville, second best, - - - 8
Wm. A. Wilcox, Lakeville, best Buck, one year old and under three, - - - - - - - 8
Mr. ——— Chafee, Cornwall Bridge, second best, - - 5
Wm. A. Wilcox, Lakeville, best five Ewes, three years old and over, - - - - - - 10
Geo. C. Hitchcock, New Preston, second best, - - 8

One year old and under three.

Geo. C. Hitchcock, New Preston, best five Ewes, - - 8
T. L. Hart, West Cornwall, second best, - - - 5
T. L. Hart, West Cornwall, best five Lambs, - - 6
Geo. C. Hitchcock, New Preston, second best, - - 3

Signed, JAMES W. GRAY.
J. F. BEARD.
A. H. BEACH.

To John T. Andrew, of West Cornwall, for the exhibition of New Oxfordshire Sheep, including Bucks, Ewes and Lambs, the Executive Committee award a premium of $25.

NO. 32.—MIDDLE WOOL SHEEP.

The Committee on Middle Wool Sheep beg leave to submit the following award of premiums, and desire to express their admiration of a very fine Buck and Lamb in George C. Hitchcock's lot:

Middle Wooled Sheep.

T. S. Gold, West Cornwall, best Southdown Buck, three years old, - - - - - - - $10
T. S. Gold, West Cornwall, second best Southdown Buck, three years old, - - - - - - 8
George C. Hitchcock, New Preston, best two years old, - 8
Gilbert Close, Stanwich, second best, - - - 5
George C. Hitchcock, New Preston, best five Ewes, three years old, - - - - - - - 10

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T. S. Gold, West Cornwall, second best five Ewes, - - $8
Gilbert Close, Stanwich, best five Southdown Ewes, one year old, 8
George C. Hitchcock, New Preston, second best, - - 5
George C. Hitchcock, New Preston, best five Lambs, - 6
T. S. Gold, West Cornwall, second best, - - - 3

All of which is respectfully submitted.

Signed, PHINEAS B. CLOSE.
HENRY STURGES.
H. M. SMITH.

NO. 33.—MERINO SHEEP.

The judges on this class of Sheep would remark that they regret that so few were exhibited, while the Long and Middle Wool were so numerous. Those on exhibition, however, were of a good quality, and in the opinion of the judges, well entitled to the awards of the Society. We hope in future to find more competition in this department. The following premiums are awarded:

James A. Bill, Lyme, best Buck, - - - $10
Jacob N. Blakeslee, Watertown, second best, - - 8
James A. Bill, Lyme, best five Ewes, - - - 10
Joseph Blakeslee, Watertown, second best, - - - 8
L. & A. Whiting, Torringford, third best, - - 5
L. & A. Whiting, Torringford, best five Lambs, - - 6
L. & A. Whiting, second best, - - - - 3

All of which is respectfully submitted.

Signed, THOMAS TREDWELL.
JOHN GILES.
H. KINGSBURY.

NO. 34.—SAXONS AND GRADES.

The Committee on Saxon and Grade Sheep, report premiums as follows:

Stanley Griswold, Torrington, best Saxon Buck, - $10
do. do. do. do. five Saxon Ewes, - 10

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[illegible] Greenwood, Torrington, second best Shear Ewes, - $8
do. do. do. best five Shear Lambs, - 5
Nathan Hart, Jr., West Cornwall, best five Ewes, grades, 10
Hill & Walker, Bridgeport, second best, - - - 8
L. T. Jones, Wallingford, third best, - - - 5
Nathan Hart, Jr., West Cornwall, best five Ewe Lambs, - 6
do. do. do. second best, - - 3

Respectfully submitted.

Signed, WM. G. BUELL.
T. A. MEAD.
CHAS FORD.

NO. 35.—FAT SHEEP.

The Committee on Fat Sheep report the following awards of premiums:

Long Wool.

George C. Hitchcock, New Preston, first premium, - $10
William A. Wolcott, Lakeville, second premium, - - 5

Middle Wooled.

George C. Hitchcock, New Preston, first premium, - 10
Theodore S. Gold, West Cornwall, second premium, - - 5

Grade.

William A. Wolcott, Lakeville, first premium, - - 10
George C. Hitchcock, New Preston, second premium, - 5
do. do. do. third do., - 3
Nathan Hart, Jr., West Cornwall, third premium, - - 3

Respectfully submitted.

Signed, ERASTUS WOODRUFF.
GIDEON THOMPSON.

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NO 36.—IMPORTED SHEEP.

The Committee on imported Sheep have attended to their duties and report as follows:

To George C. Hitchcock, of New Preston, for the best imported Cotswold Ewe, - - - - - - $10

To George C. Hitchcock for the best imported Cotswold Buck, 10

Mr. Hitchcock, with the view of obtaining the best Cotswold Sheep to be found, secured the services of an English gentleman who has always lived on the Cotswold Hills, and is thoroughly acquainted with the Cotswold Sheep, and knew where the best could be obtained, who in connection with Mr. Henry Stropford, editor of the English Herd Book, made the selection. The Buck was bred and purchased of Mr. Wm. Greene. He is one year old and weighs 325 pounds. The Ewes were bred by and purchased of Mr. George Fletcher, of Shipton, and are also one year old. They arrived in New York, August 20th, 1857.

Mr. Hitchcock has abundant reason to be satisfied with the selection, as they are pronounced by some of the best breeders and judges to be very superior animals.

To Theodore S. Gold, of West Cornwall, for the best imported Middle Wool Ewe, South Down, $10.

Signed, H. MILTON HART.
GIDEON HOLLISTER.
DAVID LEWIS.

NO. 37.—SUFFOLK SWINE.

The Committee on Suffolk Swine have attended to their duty, and make the following report, in brief, of the awards they have made:

Boars.

For the best they give the preference to the Boar, "Emperor 2d," exhibited by E. B. Williams, Esq., Lakeville, and award him the first premium, - - - - - $10

For the second best, they designate the Boar, "Prince," belonging to Wm. L. Bradley, of West Meriden, the second premium, - - - - - - 8

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For the third best, the Committee give to the Boar of Charles T. Chatfield, of Waterbury, called "York," the third premium, - - - - - - - $5

They can not help calling attention to the Boar, "Moses Wheeler, Jr.," exhibited by Wm. L. Bradley of W. Meriden, which having already taken the first premium of this Society, is removed from competition. It is a fine animal.

Sows.

There being but two Sows on exhibition, the Committee were in doubt how to make the award for the second, which did not quite come up to the rank of second best, in their opinion. They make the following awards:

To Wm. L. Bradley, of West Meriden, for his Sow, "Beauty," the first premium, - - - - - 10

To Charles T. Chatfield, of Waterbury, for his Sow, "Lady Suffolk," the third premium, - - - 5

Sows and Pigs.

To Wm. L. Bradley, of West Meriden, for his Sow, "Venus," with litter of three weeks old Pigs, the first premium, 12

To Wm. L. Bradley, of West Meriden, for his Sow, "Victoria," with litter of two weeks old Pigs, the second premium, 10

The Committee would recommend to favorable notice the half-blood Barrow, owned by George C. Coffin, of Salisbury, and exhibited by E. B. Williams, of Lakeville, as a specimen of the cross produced by the use of a full-blooded boar with the common breeds. This animal is a beautiful one, and is decidedly the handsomest one on the ground.

The Pig, six months old, of Wm. L. Bradley, of West Meriden, is a fine fellow, and though too young for premium, receives the favorable commendation of the Committee.

Two competitors, who had entered Boars, H. O. Seeley, of Easton, and Charles Hawley, of Brookfield, did not appear with their contributions.

Among these specimens of the Suffolk blood, we notice the two prominent traits of the various importations—the *coated* and the *no-coated*. The Committee can not, of course, express a preference of the one trait over the other, in any other way than that the animals of either present certain characteristics of form and figure, which commend them to the eye as essential types of excellence.

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In doing the work appointed us, we have endeavored so to designate the animal receiving a premium as that the approbation of the Society shall give it a character not to be lost or transferred to any other animal; and we submit to the Executive Committee this report of our doings, feeling that though we may have erred in judgment, we have not intentionally done injustice to any.

Signed, ALBERT TYLER.
D. C. WHITTLESEY.
D. H. SHERWOOD.

NO. 38.—SWINE.

Your Committee on Swine report that the first premium of $10 be awarded to Peter Mulligan, of Fairfield, for the best Native Boar, one year old.

The second premium of $8 to Gilbert Close, of Stanwich, for second best.

The third premium of $5 to A. & T. Jerome, of Bloomfield for third best Westchester.

For Sows.

Gilbert Close, of Stanwich, for best Berkshire, first premium,	$10
A. & T. Jerome, of Bloomfield, for second best Westchester, second premium,	8
A. & T. Jerome, of Bloomfield, for third best Westchester, third premium,	5

For Sow and Pigs.

Lewis Burr, of Fairfield, for Sow and twelve Pigs, native, first premium,	12
A. & T. Jerome, of Bloomfield, Westchester Sow and three Pigs, second premium,	10
George E. Ryder, of Danbury, for Sow and thirteen Pigs, third premium,	8

All which is respectfully submitted.

Signed, JOHN E. COWLES.
WM. H. PUTNAM.

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NO. 39.—POULTRY.

The Committee on Poultry report the following awards:

For a coop of Dorkings. John M. Bose, Greenwich, - -	$1
Best trio of Golden Polands. Frederick Frye. Bridgeport, -	2
Best trio of Porto Rican Game fowls, George Bright, Bridgeport,	2
2d do. Irish do. do. do.	1
Best coop Shanghais, Thomas Smith, Black Rock, - -	2
do. Gray Shanghais, John M. Rose, Greenwich, -	2
do. Bolton Grays, Frederick Frye, Bridgeport, -	2
A coop Black African Bantams, John M. Rose, Greenwich,	1
do. White Bantams, John M. Rose, Greenwich, -	1
Best pair Turkeys, William Burr, Fairfield, - - -	1
Best coop Turkeys, Eliza Northrop, Newtown, - -	3
Best pair White Turkeys, Henry Sturges, Plymouth, -	2
Best coop Bramapootra fowls, Wm. M. Dunning, Bridgeport,	2
A coop of cross-bred fowls, M. Bond, Greenfield, - -	1
Best half-dozen Rabbits, Nelson Cary, Bridgeport, - -	1
A cage Canary Birds, 16 in number, J. L. Roberts, Bridgeport,	1
Best coop common Geese, Thomas H. Holaday, Hartford,	2
Best and greatest variety of Pigeons, L. and L. B. Sterling, -	2
Best pair of Pigeons, Wm. Burr, Fairfield, - -	1

The Pigeons exhibited by L. and L. B. Sterling, were very fine, and deserve particular mention of the Committee, for their purity of blood, style and neatness which they presented to the spectators. There were also on exhibition, a very fine Parrot, and Mourning-Dove, belonging to Doctor E. B. Middlebrook, of Bridgeport.

All of which is respectfully submitted.

Signed, CHARLES HOUGH.
JOHN. T. ANDREW.
GEORGE E. RIDER.

CLASS IV.

NO. 40.—PLOWING.

The undersigned Committee on Plowing, would respectfully report, that the Hon. Charles H. Pond, and Gen. Peleg Child, were ap-

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pointed to fill the vacancy occasioned by the inablity of Mr. Porter and Mr. Atwood to be at the Fair. There were seventeen competitors on the ground, (two having withdrawn,) viz.:

With other than Michigan Plows.

T. L. Hart, West Cornwall, Eagle Plow, No. 73½.
P. E. Plumb, Trumbull, Iron-Beam, Rich's Patent.
Charles Hough, Bridgeport, Single Michigan.
Levi W. Burwin, Danbury, Peekskill, No. 32.
John Day, Danbury, Peekskill, B. Hall's Patent.
Samuel M. Banks, Weston, do. do.
D. L. Cooley, Westport, Peekskill, Rich's Patent.
A. H. Jerome, Bloomfield, Prouty & Mears, No. 154.
Lorin Carpenter, Middletown, Eagle, No. 73½.
David Judson, Stratford, Prouty & Mears.
James Hoyt, New Canaan, Rich's Patent.
Augustus Hamilton, West Hartford, Eagle, No. 73½.

Boys under 18 *years of age.*

Horace B. Hart, West Cornwall, Eagle, No. 73½.
S. M. Gregory, Bloomfield, Prouty & Mears.

Michigan or Double Plow.

Thomas Cowles, Farmington.
J. G. Jerome, Bloomfield.
B. W. Hamilton, West Hartford.

The ground selected for the trial was of uneven surface, variable in soil,—light loam, stiff clayey loam, with retentive sub-soil, in grass many years, and not fully recovered from the last drought. In fact, the condition was such that no plow or plowman could do first-rate work. Under such disadvantages, we were surprised that they made as good work as they did. The variation in the different lands made it somewhat difficult to decide which competitor was entitled to the most merit.

In relation to the plows used, your Committee would say, that of Eagle, No. 73½, and of Prouty & Mears, have been so long in use, and are now so well-known, that little need be said. Prouty & Mears' did excellent work, laying the furrow even and smooth, a little inclining to run shallow, of light draft, and easily managed Eagle, No. 73½, makes a furrow of better depth, leaves it a little more friable. Either are first-rate plows for tolerably smooth land

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The Single Michigan, used by Mr. Hough, is a double plow, with small one taken off appeared to work similar to the Eagle, and we would suggest, whether it would not be a good substitute for the common sod plows, thereby saving the expense of keeping two plows.

The Iron-Beam Plows did heavy strong work, turning a heavy deep furrow, well laid over,—a little heavier draft than the Eagle, being much shorter, we should judge it might be well adapted to rough land. They are used in the south-western and north-eastern parts of the State. They are simple in their construction, and can not be very expensive. These qualities render them worthy of trial.

The Double Michigan is calculated more particularly for root culture. It makes a deep furrow, first laying over the turf with the little plow, followed by the larger one. It leaves the furrow light and friable, and ready for the seed with but little more labor. The after culture must be much diminished.

The work turned out by the boys under eighteen years of age, was done in a scientific, workmanlike manner, showing it was no haphazard thing, but a matter of science. And the same may be said also of the other competitors.

Mr. T. L. Hart exhibited a new way of turning the last or dead furrow, which to the Committee was new. He does it in this way. After the last furrow is turned, he turns four back-furrows together, two on each side, which leaves the field with much less depression than in the ordinary way, and better for cultivation. We would recommend that it be tried by those who want to see nice work.

Your Committee would say, that from their observation for quite a number of years, they can testify to the practical benefits upon the agricultural interests of the State, of the State and County Plowing Matches. Although at the time it may not be so attractive as the show of cattle or horses, and may not contribute so much to draw a crowd, yet since it is by the plow we thrive, we regard it as the foundation of agricultural thrift, and in our opinion the plowing-match has done as much as any one thing to improve the culture of our farms, a fact which is evident to every observing man. It has a great influence in a variety of ways. Some of which are by introducing the best kind of plows, enabling them to do better work with less team, reducing the labor of after culture, leaving the land in better condition for succeeding crops and for grass.

Your Committee would recommend that for future plowing the land selected should be as uniform as practicable, laid off in lands,

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and numbered with large figures on stakes at each end, standing at least four feet out of the ground, and the lands struck out with mathematical exactness.

Any one can see at once the need of some better arrangement, after having once seen the excitement and confusion in starting. They would also recommend that competitors should be required, when they make their entry, to give the kind of plow they intend to use.

Your Committee have awarded the following premiums, to wit:

For other than Michigan Plows.

1st. James Hoyt, New Canaan, Rich's Patent Iron-Beam,	$15
2d. A. H. Jerome, Bloomfield, Prouty & Mears', No. 154,	12
3d. Charles Hough, Bridgeport, Single Michigan,	10
4th. Loren Carpenter, Middletown, Eagle, No. 7½	8
5th. T. L. Hart, West Cornwall, Eagle, No. 7½,	6

Michigan Plows.

1st. T. G. Jerome, Bloomfield,	15
2d. Thomas Cowles, Farmington,	10
3d. B. W. Hamilton, West Hartford,	8

Boys under eighteen years of age.

1st. S. M. Gregory, Prouty & Mears, No. 155,	10
2d. Horace B. Hart, West Cornwall, Eagle No. 7½,	8
Augustus Hamilton, West Hartford, Eagle, No. 7½,	3
Levi W. Baldwin, Danbury, Peekskill, No. 32,	3
Samuel M. Banks, Weston, B. Hall's Patent,	3

All of which is respectfully submitted.

Signed, DANIEL C. WHITTLESEY.

NO. 41, (A.)—FARM IMPLEMENTS.

The Committee on Farm Implements respectfully report:

The Committee have been pleased with the novelty of construction, and the great merit of many of the articles offered for inspection. Particularly have they been delighted with the display of Mowing Machines. In nothing more, perhaps, has the fertility of the American mind been shown than in the adaptation of this won-

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derful machine to the wants of farmers. A few years since, and they were practicable only on the smoothest meadows. Now, we have machines suited to our uneven surfaces, working over and around hillocks and on side hills, clearing themselves of all usual obstructions, and doing the work with a nicety and celerity astonishing to the common scythe man.

All honor to the men who have shown us how to substitute the strength of animals for human bone and sinew, in this most laborious part of farm labor.

There were five machines on exhibition, viz.:

Manny's Improved, by John P. Adriance & Co., Manufacturers, Worcester, Mass.

New Ohio Mower, by Ball, Aultman & Co., Canton, Stark County, Ohio.

Gale's Mower, by Alanson Gale, Manufacturer, Poughkeepsie, New York.

Allen's Patent, by R. L. Allen, Manufacturer, New York.

Colburn Mower, by A. Colburn, Ansonia, Conn.

All these claim and possess peculiar points of excellence. And your Committee can readily conceive how that a farmer, owning and using either of the first four named, should imagine that he had the best.

In the judgment of the Committee, the contest was between Manny's and the New Ohio Mower. It is evident that neither of these machines have any side draft.

Manny's Reaper and Mower.

Manny's machine, having been before the public a long time, is known to possess a world-wide reputation as a *Reaper* and *Mower*, and recent improvements to the Mower have been added. Its main points are simplicity, strength, peculiar form of the *finger-guards* and *knives* to prevent clogging, and the easy arrangement for elevating the *cutter-bar* to pass obstructions, and to cut high or low at the will of the driver.

New Ohio Mower.

The New Ohio Mower is entirely novel in its construction, and has been examined with particular care and interest. The machine runs on two wheels like a cart; both wheels, by means of falls and rackets, acting as drivers. The *cutter-bar* being attached to the machine by a *double hinge*, accommodates itself to uneven surfaces, the

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knife moving with equal ease when either end of the bar is depressed or elevated. This arrangement allows also the cutter-bar to be folded *over* on to the machine in front of the driver without uncoupling any of the driving gear, rendering the whole *very* compact and safe for transportation, and stowing away when not in use. There are other distinguishing features in this machine. It would seem to be particularly adapted for work on the uneven surfaces of our New England mowings. This machine admits of a reaper attachment.

Were your Committee to decide upon a combined machine, with their present knowledge, they would unhesitatingly award to Manny's; but as a *new mower*, for reasons stated above, and from the evidences of its practical working the past summer, they award to Ball, Aultman & Co., of Canton, Stark County, Ohio, for the New Ohio Mower, the Society's *only* premium, a *Gold Medal.*

Allen's Mower.

This machine received a former premium of the Society. It is well-known, and needs no description.

Gale's Poughkeepsie Mower.

This is a substantial machine, of singular, but simple construction, and extremely neat in all its parts. The Committee see no reason why it should not work well, and rank as a first-class machine. The draft seemed to be unusually light.

Harrows.

Among all the improvements in agricultural implements the past season, your Committee express the opinion that none have been more radical or of greater benefit to the farming community, than the improvement in harrows. The Coulter Harrow and Ohio Revolving Harrow were both tested in the field, to the great satisfaction of the Committee and of the many farmers present.

Coulter Harrow, by D. W. Shares, Hamden, Conn. The frame work is similar to a three-cornered harrow. The advantages lie in construction of the teeth. The coulters are broad thin plates of iron, inclining forward to prevent clogging. A small mold-board is attached to the lower end of the coulter, the whole acting like a double gang of plows. It puts all the seed under any depth required, and no matter how many stalks or loose trash there is, there appears to be no liability to clog. This harrow was tried upon the sod. Instead of tearing and turning up the sod, it pulverized the surface

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similar, but much more thoroughly, than the cultivator. For covering grain it must rank next to the drill.

H. G. Hall, Putnam, Ohio, exhibited a Rotary Harrow, something entirely new. The exhibitor claims that it does double the work with one-half the power required on the common harrow. There is evidently a saving in the power required to propel, by the rotary motion, and it certainly did the work admirably. On the nicely turned sod it pulverized the surface *fine* enough for an onion bed.

As these harrows are adapted to different kinds of work, both of which will probably be considered indispensable on good farms, your Committee award a premium of five dollars to each.

D. W. Shares, of Hamden, Conn., exhibits two machines, called a *Combined Planter and Hoe*, and a *Horse Hoe*, by the use of which the hand-hoe is entirely dispensed with in the cultivation of crops in rows. Your Committee can assure farmers that these implements have been tested, and found to be of great practical value.

H. Baldwin, Washington, exhibited a *Smut* Machine for cleaning grain, which is deemed worthy of a premium. There being no competition for the silver medal offered for the best *Corn and Cob Crusher*, the Committee recommend that this medal be awarded to Mr. Baldwin.

Best Cultivator, A. A. Hotchkiss, Sharon Valley, - - $3
Best Drill Barrow, John Guyer, Westport, - - - 5
Best Seed Planter, D. W. Shares, Hamden, - - 5
Best Fanning Mill, (Bean's Patent,) H. Keeler, South Salem, New York, - - - - - - 5
Best Corn-Stalk Cutter, Globe Man. Co., Birmingham, - 5
Best Hay-Cutter, James Sandford, Reading, - - - 5
Best Vegetable-Cutter, Thomas J. Moody, Fairfield, - 5
Best Horse-Rake, Alpheus Brown, Round Hill, - - 5
Best Hand Corn-Sheller, W. E. Cornwall, Portland, - 3
Best Portable Grist-Mill, Hull & Beardsly, Bridgeport, *Silver Medal.*
Best Road-Scraper, J. H. Dudley, Litchfield, - - $5
Best Horse-Hoe, D. W. Shares, Hamden, - - - 5
Best Ox-yoke, John T. Andrew, West Cornwall, - - 3
Best Ox-Cart, Wells Brothers, New Britain, - - - 5
Best Apple-Paring and Slicing Machines, Marvin Smith, New Haven, - - - - - - - 3

All of which is respectfully submitted,

Signed, H. W. PITKIN.
STEPHEN HOYT.

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NO. 42. (B.)—FARM IMPLEMENTS.

The Committee respectfully report that they have attended to the duties assigned them, and regret that there was no more competition in the articles offered. Yet it is with pleasure they can bear testimony to the superior workmanship of most of the articles that came under their inspection.

They would call your attention to a set of Double Harness made by Messrs. Harrall & Calhoun, of Bridgeport, which, for elaborate finish, excellence of material, and beauty of skill, it would seem imimpossible to surpass. As also to a Gentleman's Riding Saddle of superior workmanship, and a Ladies' Riding Saddle, highly finished, combining improvements that impart safety, ease and grace to the rider; for these, a premium of a Gold Medal is awarded.

F. P. Ambler & Sons, Trumbull, whose exhibition of Saddle-Trees of the several kinds, viz.: Express, Gig, Spanish, and Canvassed, were of superior workmanship and material, and as there is no premium offered for that kind of manufacture, your Committee would recommend a diploma to the Messrs. Amblers for the same.

To E. C. Tuttle, Naugatuck, best one-half dozen Hoes, highly finished, a premium of $2. Best dozen Rakes, a premium of $2. Forks, not found.

To American Shovel Company, Bridgeport, one case of Shovels, of good steel and beautiful finish, a premium of $3.

To L. N. Collins, Torrington, best one-fourth dozen Scythes, your Committee would recommend a premium of $2.

To Beers & Son, New Fairfield, one Churn combined with a Butter-Worker, a premium of $5.

To Anson Comstock, Danbury, Grain Cradle, combining a new principle for adjusting fingers and retaining its various parts in proper position, a premium of $2.

To James Ives, of Mt. Carmel, Harness-Pad and Pad-Tree on a new principle, is deserving of creditable mention, and your Committee would recommend a discretionary premium of $1.

Signed, WM. A. JUDSON.

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NO. 43.—COLLECTION OF AGRICULTURAL IMPLEMENTS.

The Committee have attended to the business allotted them on Farming Implements. There being no assortment of Plows competing, we do not think it best to award any premium on Plows.

Fairbanks & Co., of New York City, exhibited a Portable Hay-Press, to which your Committee award a Silver Medal.

All of which is respectfully submitted.

Signed, R. I. CANFIELD.
S. L. HART.
Z. BRADLEY.

NO. 44.—TOOLS, MACHINERY, &c.

The Committee on No. 44, beg leave to report, that they have attended to the duties of their appointment, and have awarded the following premiums:

To Wm. Brown, Oswego, New York, Holley's Eliptical Force Pumps. Diploma.

To Jeffrey & Co., Corning, New York, Pump Rubber Ball Valve. Diploma.

To Wheeler, Wilson & Co., Bridgeport, Sewing Machine—the best on exhibition. Gold Medal.

To Gray & Hicks, Bridgeport, Force, Lift and Suction Pumps. Diploma.

To Fairbanks & Co., New York City, best Hay Scale. Silver Medal.

To Ayres' Patent Well and Gate Co., by H. A. Dyer, Pres., Self acting Gate, being so constructed that the Gate will open and that by the weight of the horse and carriage passing over it, is of very great convenience, and operates in a very perfect manner. Your Committee award a Gold Medal.

To Ayres' Patent Well and Gate Co., for Self-acting Well. The perfect manner in which the weight of the animal draws and empties the water for its own use, entitles the exhibitor to a Silver Medal.

To G. W. Bigler, New Haven, Gear Cutting Machine. Diploma.

To Pacific Iron Works, Bridgeport, Steam Engine, with Green's

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patent cut-off. A splendid piece of workmanship and a superior working article. Gold Medal.

Best specimen of Horse Shoes, John Kennedy, Waterbury. Diploma.

Best Watch Maker's Lathe, Charles Ball, Bridgeport. Diploma.

Best Gear Cutter, G. W. Bigelow, New Haven. Diploma.

Best specimen Carriage Bolts, Sharon Bassett, Birmingham. Diploma.

Best Washing Machine, Le Roy & Co., Hartford. Diploma.

To J. D. Johnson, Bridgeport, Wood's Patent Shingle Cutter Silver Medal.

Small Model Steam Engine, Charles B. Lewis, Bridgeport. Diploma.

To J. M. Singer & Co., N. York, Sewing Machine. Silver Medal.

Best Rotary Pumps, Wm. Brown, Oswego, New York. Diploma.

To John Osborn, best Hydraulic Ram. Diploma.

Reuben Posthums, Philadelphia, for the best Self-weighing Horse-Cart. Silver Medal.

All which is respectfully submitted.

Signed, HERMAN BALDWIN.
TRUMAN SANDFORD.
A. A. HOTCHKISS.

CLASS V.

Dairy Produce, Grain, Vegetables, &c.

NO. 45.—BUTTER.

The Committee on Butter respectfully report, they have examined the samples submitted and award the premiums as follows:

Fall Butter.

A. & T. Jerome, Bloomfield, - - -	Diploma.
Silas & Seth Hurd, Huntington, first premium, -	$15
Mrs. Hannah W. Hicox, Naugatuck, second premium, -	10
Levi J. Munsell, Winchester, third premium, - -	8
B. B. Plumb, Trumbull, fourth premium, - - -	5

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June Butter.

A. & T. Jerome, Bloomfield, first premium, - - $15
J. P. McNeil, Salisbury, second premium, - - 10
William C. Sherwood, Fairfield, third premium, - - 8
George Lewis, Stratford, fourth premium, - - 5

All of which is respectfully submitted.

Signed, J. M. GLAZIER.
C. MALLETT.
E. A. PHELPS.

NO. 46.—CHEESE.

The Committee on Cheese respectfully report the following premiums:

T. L. Hart, West Cornwall, for "English Dairy" New Cheese, first premium, - - - - - $10
Nathan Hart, Jr., West Cornwall, second premium, - 8
Norris Coe, Winchester, best fifty pounds old "English Dairy," first premium, - - - - - 10
Daniel Whittlesey, New Preston, Cheese one year old, first premium, - - - - - 10
J. P. McNiel, Salisbury, second premium, - - - 8
Wm. H. Putnam, Brooklyn, third premium, - - 5

New Cheese.

Wm. H. Putnam, Brooklyn, for best New Cheese, - 10
Levi J. Munsell, Winchester, second best New Cheese, - 8
J. P. McNeil, Salisbury, third premium, - - - 5

To Phineas North, of Torringford, for fine sample of Pine Apple Cheese, very creditable to the maker, we recommend a discretionary premium of $5.

One Old Cheese exhibited by Levi J. Munsell, sound and good, indeed the best on exhibition, could not receive the premium from the fact that not weight enough was exhibited.

Signed, JOHN M. WADHAMS.
J. M. GLAZIER.
CHARLES MALLETT.
P. HOADLEY.

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NO. 47.—HONEY, &c.

The Committee report the following premiums:

Edmund Thompson, Stratford, White Clover Honey, one-half first premium,	$3
Samuel Thompson, Ellington, White Clover Honey, one-half first premium,	3
Stephen Topliff, Oxford, White Clover Honey, second premium,	3
Lauren Tyrrell, Woodbury, buckwheat, discretionary premium,	2

Syrup from Chinese Sugar Cane.

Wallingford Community, B. Bristol, agent, Wallingford, first premium,	2

Beeswax.

John Wakeman, Greenfield, Beeswax, one-half first premium,	1
Smith Beach, Cornwall, do. do. do.	1
Phineas North, Torrington, Maple Sugar, premium,	1
Henry Sanford, Bethany, Bayberry Tallow, do.	1

All of which is respectfully submitted.

Signed, T. S. GOLD,
R. B. CHAMBERLAIN.
WILLIAM W. STONE.

NO. 48.—GRAIN AND SEED.

The Committee respectfully submit the following awards:

John Ford, Stratford, best sample Winter Wheat,	$3
Samuel C. Wildman, Danbury, best sample Spring Wheat,	3
William J. Pettee, Lakeville, second best,	2
James A. Bill, Lyme, best sample Barley,	3
J. T. Linsley, Northford, second best,	2
James W. Gray, Balls Pond, best sample Oats,	3
Nathan Seeley, Bethel, second best,	2
J. K. Hall, East Hartford, best sample Rye,	3
James A. Bill, Lyme, second best,	2

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Birdsey Bristol, Wallingford, agent for Wallingford Community, best sample of Buckwheat, - - - - $3
Albert S: Coan, Trumbull, second best, - - - 2
do. do. do. best sample Indian Corn, on ear, 3
Nathan Seeley, Bethel, second best, - - - - 2
James A. Bill, Lyme, best sample Timothy Seed, - 5
R. B. Martin, Woodbury, second best, - - - 3
do. do. do. best sample Clover Seed, - 5
do. do. do. second best do. do. - - 3
D. Lockwood, Black Rock, best sample Beans, - - 2
David Lewis, Huntington, second best, - - - 1
James A. Bill, Lyme, sample of Red Top Seed, discretionary, 2

Signed, BENJAMIN SUMNER.
LAUREN TYRRELL.
FRANCIS W. COWLES.

NO. 49.—VEGETABLES.

The premiums awarded by the Committee are respectfully reported as follows:

George Cornwall, Milford, best Celery, - - - $2
John M. Rose, Greenwich, best Cauliflower, - - 2
Sackett G. Benham, Hamden, best Turnips, - - - 2
Albert S. Coan, Trumbull, second best, - - - 1
J. H. & D. H. Sherwood, Fairfield, best Carrots, - - 2
W. J. Pettee, Lakeville, second best, - - - 1
Jessup Banks, Fairfield, six best Pumpkins, - - - 2
Wm. D. Bishop, Bridgeport, best Beets, - - - 2
J. H. & D. H. Sherwood, Fairfield, second best, - - 1
W. R. Bunnell, Bridgeport, best half bushel Onions, - 2
Geo. E. Croswell, Westport, second best, - - - 1
Wm. R. Bunnell, Bridgeport, best twelve Bunches Onions, 2
L. A. Brown, West Haven, best Winter Cabbages, - - 2
Wm. D. Bishop, Bridgeport, second best, - - - 1
Wm. N. Underwood, Fairfield, best Tomatoes, - - 2
Wallingford Community, Wallingford, second best, - 1
J. V. Hull, East Hartford, Lima Beans, - - - 1
John L. Taylor, Norwich, best Winter Squashes, - - 2

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Wm. L. Lewis, Bridgeport, second best Winter Squashes, - $1
David D. Cooley, Weston, best table Potatoes, - - 2
M. B. Hanford, Easton, second best, - - - 1
John V. Hull, East Hartford, best Sweet Corn, - - 2
Charles Hough, Bridgeport, second best, - - - 1
P. Buckley, Hartford, best and greatest variety of Vegetables, first premium, - - - - - - 10
T. H. Holliday, second premium, - - - - 8
J. M. Rose, Greenwich, third premium, - - - 5

Discretionary.

Wallingford Community, Wallingford, Sweet Potatoes, - 1
Homer A. Sackett, Warren, Squashes, - - - 1
T. S. Gold, West Cornwall, variety of Vegetables, - - 3
Charles Taylor, Redding, Winter Radish, - - - 1
J. H. & D. H. Sherwood, Fairfield, California Pumpkins, - 1
George M. Mahon, New Milford, Prince Albert Potatoes, - 1
William Platt, Newtown, do. do. do. - 1
F. A. Rockwell, Ridgefield, do. do. do. - 1
Ezra Wheeler, Fairfield, Ruta Baga Turnips, - - 1

Signed, S. MEAD.
L. A. BROWN.
C. E. PLUMB.

NO. 50.—FLOUR, BREAD, &c.

The Committee on Flour, Bread, &c., respectfully report, that on entering upon their duties they found, both to their surprise and regret, quite a paucity of articles exhibited for premiums in their department. But one barrel of Flour was entered, and the premiums offered for "Starch from Corn," "Starch from Wheat," "Farina from Corn," and "Crackers by the Barrel," did not bring out either of those articles to compete therefor. They turn with more satisfaction to the display of articles exhibited by the gentler sex; the products of their fair hands being numerous, and evincing both taste

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and skill in preparing for the human palate the various kinds of the staff of life.

Of Wheat Bread there were 16 entries.
Of Rye do. do. 15 do.
Of Brown do. do. 4 do.

There were on exhibition besides—

A case containing Sponge Cake, Dough Nuts, and Tomatoe Pie.

A case containing Crackers, surmounted with a mammoth loaf of Baker's Braided Bread.

A case containing a loaf of Ornamented Cake. Also,

Various samples of Pastry Cooking. Also,

A case of Ornamental Confectionery, Cake, &c., very handsome, showing it to be from the hands of a skillful manipulator.

The Committee awarded for stated premiums, for best barrel Flour made in Connecticut, to Hawes & McEwen, Bridgeport, - - - - - - Silver Medal.
For best sample of Wheat Bread, of domestic manufacture, to H. M. Coe, of Durham, - - - - -
For second best do., to J. H. & D. H. Sherwood, of Fairfield, 2
For third best do., from Wheat grown on exhibitor's farm, to James A. Bill, of Lyme, - - - - - 1
For the best sample of Brown Bread, domestic manufacture, Henry Sanford, Bethany, - - - - - 3
For second best do., to James A. Bill, Lyme, - - 2
For third best do., to Mrs. E. M. Robinson, Bethany, - 1
For best sample of Rye Bread, to Henry Sanford, Bethany, - 3
For second best do., to Charles Wakelee, Huntington, - 2
For third best, Miss Harriet G. Putnam, Brooklyn, - - 1

Discretionary.

For a card of Sponge Cake, to Mrs. Ezra Silliman, Bridgeport, 1
For a loaf of Ornamental Cake and for a case of Pastry samples, to Charles R. Englehardt, Bridgeport, - - 3
For a case of elaborately Ornamented Confectionery, Bread, Cake and Crackers, to A. W. Wallace, Bridgeport, Diploma.
For a case of Crackers and a mammoth loaf of Bread, to William Hall, Bridgeport, - - - - - 1

Several of the samples of Bread were not accompanied with the recipes from which they were made, compelling the Committee to pass them by conformable to a regulation of the Society. These

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specimens were promising in their external appearance, and the Committee regret the necessity of their omitting their examination, preliminary to their awards.

Signed, NATHANIEL A. BACON.
EDWIN WHITE.
PELEG C. CHILD.

Recipes for Wheat Bread.

Take one gill of home made yeast and make one pint of sponge; let it stand from nine o'clock P. M. until morning, in a warm place. Put this sponge into five pounds of flour, and wet with new milk, stiff enough to mould well. After moulding, let it stand until light enough to crack; then mould again thoroughly and make it into loaves and put it into pans; let it stand in the pans fifteen minutes, then bake in a good brick oven one hour.

MRS. H. M. COE, *Durham.*

A sponge is set at night with lukewarm water and yeast-cake, made by stirrring Indian meal into baker's yeast until stiff enough to make into small cakes, which are then dried and kept for use. Warm milk is added to the sponge when the Bread is made; when sufficiently light it is moulded and put into pans, then allowed to rise a while before baking.

J. H. & D. H. SHERWOOD, *Fairfield.*

Sponge in the evening with hop-yeast; wet in the morning following with warm new milk; knead fifteen minutes; put in forms and let it stand and rise; when sufficiently light, bake three-fourths of an hour.

MRS. JAMES A. BILL, *Lyme.*

Recipes for Brown Bread.

Take one part corn-meal, to three parts unbolted rye, wet with new milk, and raise with common yeast; when light bake two hours.

HENRY SANFORD, *Bethany.*

Take yellow-corn, ground rather coarse, and sifted through a coarse seive, three parts; unbolted rye-meal ground finer than for bolting, two parts. The corn-meal to be scalded with water not quite at boiling heat, then cooled till it will do to add the rye and yeast; raise half an hour to an hour, and bake in a hot oven three to four hours. In mixing in the rye-meal, more water is to be added, suffi-

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cient to put it into pans with a ladle; bake in iron pans, single or double.

SARAH B. A. ROBINSON, *Bethany.*

Recipes for Rye Bread.

Sponge in the evening with common yeast, and wet in the morning following with new milk; when light, mould and let it rise in the tins, about half an hour; then bake one hour.

HENRY SANFORD, *Bethany.*

Stir up a sponge of new milk and hop yeast, and let it stand over night to rise; in the following morning add more flour, knead it well, and let it stand about two hours, when it will be ready to bake.

MISS HARRIET G. PUTNAM, *Brooklyn.*

Recipe for Sponge Cake.

Use twelve eggs, the weight of ten in sugar, the weight of six in flour, the grated rind of a lemon and one-half the juice; beat the whites of the eggs to a froth, then stir the yolks and sugar thoroughly together; add the lemon, one-half a teaspoonful of salt, and the whites; stir constantly for ten or fifteen minutes; mix the flour with little stirring and bake at once.

MRS. EZRA SILLIMAN, *Bridgeport.*

CLASS VI.

Domestic Manufactures.

NO. 51.—SILK MANUFACTURES.

The Committee on Silk Goods award the first premium for Silk Hose to Mrs. Grace A. Glenney, of New Haven, $2.

Signed, W. D. BISHOP.

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NO. 52.—HOUSEHOLD MANUFACTURES.

The Committee on Class No. 52, submit the following report:

Thomas B. Stevens, Litchfield, best 15 yards Rag or other Carpet, first premium, - - - - - - $10
Charles Gregory, Easton, second, - - - 8
Mrs. Henry L. Burr, Hartford, third, - - - 5
George Lewis, Stratford, Best Hearth Rug, first, - 2
Benjamin F. Brinsmade, Trumbull, second, - - - 1
Mrs. D. Whittlesey, New Preston, pair Woolen Blankets, first, 5
S. C. Buddington, Huntington, second, - - - 3
Mrs. Joseph Osborn, Fairfield, 10 yards Wool Flannel, first, 5
Mrs. H. B. Coley, Weston, second, - - - 3
Mrs. Grace A. Glenney, New Haven, Quilted Counterpane, first, 3
Elizur Northrop, Newtown, second, - - - - 2
Miss Emily S. Perry, Easton, best Knit Counterpane, first, 3
William McQuirk, Bridgeport, second, - - - 2
Henry Huss, Bridgeport, best Silk Comfortable, first, - 2
Mrs. P. Perry, Greenfield Hill, pair Woolen Yarn Mittens, first, 2
Smith Beach, Cornwall, second, - - - - 1
Julia Wakeman, Easton, best pair Woolen Yarn Fringe Mittens or Gloves, first, - - - - - - 2
Levi Coe, Middletown, second, - - - 1
Miss Delia S. Perry, Easton, pair Woolen Knit Stockings, first, 2
George Lewis, Stratford, second, - - - - 1
Thomas B. Stevens, Litchfield, Woolen Knit Half Hose, first, 1
Mrs. James S. Cole, Easton, best Cotton Hose, first, - 2
Mrs. Grace A. Glenney, New Haven, pair Silk Knit Stockings, 2
Charles Gregory, Easton, Linen Knit Stockings, first, - 2
Mrs. James S. Cole, Easton, second, - - - - 1
Sarah Sanford, Reading, best Shirt, first, - - 2
Sarah Sanford, Reading, second, - - - - 1
Charles Gregory, Easton, best ten yards Linen, first, - - 5
Mrs. P. Perry, Greenfield Hill, second, - - - 3
John F. Beard, Danbury, third, - - - - 2
Mrs. H. B. Coley, Weston, best ten yards Tow Cloth, - 2
do. do. do. do. Linen Kersey, first, 5
Smith Beach, Cornwall, second, - - - - 3
Mrs. H. B. Coley, Weston, Coverlid, discretionary premium, 2
Smith Beach, Cornwall, Summer and Winter Blanket, do. 1
Mrs. J. W. Stewart, Bridgeport, Silk Quilt, do. 1

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Mary E. Henrietta Trumbull, two Quilts, discretionary, $1
Mrs. Anne Nichols, Bridgeport, one Knit Counterpane, the work of a lady aged 74, do. 2
Mrs. Jerome, Newton, one Quilt, do. 1

Signed, MRS. HOBART.
MRS. DASKAM.
MRS. JOHNSON.
MRS. WILMOT.
MISS E. J. LAKE.

NO. 53.—FANCY ARTICLES.

The Committee have carefully examined the Fancy Articles on exhibition, and respectfully make the following report:

Miss Caroline White, Bridgeport, best Infant's Embroidered Shawl, - - - - - - $3
Mrs. Henry R. Parrott, Bridgeport, second, - - - 2
Miss Mary Bull, Bridgeport, third, - - - 1
Mrs. H. Sturges, Plymouth, best Embroidered Muslin Collar, first, 3
Miss Delia F. Perry, Easton, second, - - - 2
Miss Emily S. Perry, Easton, third, - - - 1
Miss Delia F. Perry, Easton, Embroidered Handkerchief, first, 3
Mrs. J. W. Stewart, Bridgeport, second, - - - 2
Miss Mary J. Shelton, Huntington, best Worsted Chair Back and Seat, first premium, - - - - 3
Miss M. S. Fitch, Bridgeport, second, - - - - 2
Miss Isabella Mills, Bridgeport, third, - - - 1
Mrs. H. B. Coley, Weston, best Embroidered Ottoman, first, 3
Mrs. Elizabeth Stanton, Bridgeport, second, - - - 2
Mrs. Henry Botsford, Newtown, third, - - - 1
Mrs. William Hall, Bridgeport, best Worsted Picture, first, 3
Miss Mary Ann McCartry, Bridgeport, second, - - 2
Miss Margaret McCartry, Bridgeport, third, - - 1
Miss Maria Masterson, East Bridgeport, Wax Fruit, - - 3
Mrs. Wm. H. Thompson, Bridgeport, Wax Flowers, - 2
Miss M. W. Ball, Bridgeport, Fancy Tables, first premium, 3
Miss C. E. Baldwin, Bridgeport, second, - - - 2
Charles Beers, do. Fancy Inlaid Table, - 2

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Miss Anna Woolley, Bridgeport, Embroidered Skirt, - $1
Mrs. J. W. Stewart, do. Child's Embroidered Dress and Cloak, first premium, - 3
Mrs. J. M. Glazier, Hartford, second, - - - 2
Mrs. Dr. B. Giddings, third, - - - - - 1
Mrs. George Keeler, Bridgeport, Leather Work, first, - 3
Miss Fanny Parrott, do. second, - - - 2
Miss C. Penfield, Black Rock, third, - - - 1
George Bright, Bridgeport, Stuffed Birds, first, - - 3
Joseph F. Taylor, do. second, - - - 2
Margarett Long, East Bridgeport, 9 years old, Tidy, - - 1
Julia B. Hall, Trumbull, Tidy, - - - - 1
Mrs. Wm. A. Smith, Bridgeport, Worsted Tidy, - - 1
Miss Abbe Farnham, Durham Centre, Card Basket and Mat, 1
Miss Harriet White, Hartford, Elegant Crochet Shawl, - 2
Mrs. Elizabeth Bennett, Westport, aged 91, Infant's Dress, 2
Mrs. Wilbur, Bridgeport, Leather Work and Embroidery, - 3
Miss Perry, Easton, Ladies' Skirt, - - - 3
Miss E. B. Middlebrook, do. - - - 2
Miss Mary Holdridge, Black Rock, Elegant Worsted Shawl, 2
Julia Fairchild, Bridgeport, Embroidered Slippers, - - 1
Miss Sophia Jaquith, do. Shell Box, - - 2
E. Birdsey & Co., Elegant case of Cloaks, - - - 3
Mrs. Samuel C. Wildman, Danbury, Sofa Pillow, - 1
Miss W. C. Merwin, New Milford, Worsted Embroidery, a Picture and Mat, - - - - - 2
Mrs. David Perry, Bridgeport, Knit Tidy, - - 1
Mrs. A. D. Baldwin, aged 70, Greenfield, Knit Cradle Quilt, 1
Harriet Warren, Bridgeport under ten years, Chair Cushion, 1
Mrs. Nichols, do. aged 74, Cloth Elephant and Rabbits, 1
Mrs. David W. Sherwood, Easton, Alum Basket and Vase, - 1
Miss M. J. Buckley, Southport, Fancy Card Basket and Watch Case, - - - - - - - 1
Mrs. John T. Andrew, West Cornwall, Needle Work Collars, 1
Mrs. Mary Ann Garland, Bridgeport, Leather Work Frame, 1
Mrs. Wm. H. Thompson, do. do. - 2
Miss Sarah C. Beach, do. do. - - 2
Mrs. Betsey Smith, Ansonia, aged 80, Leather Basket, - 2
Miss Mary Ann Boughton, Bridgeport, Shell Stands, - - 3
Miss Augusta Jennings, Westport, Pine Cone Stand, and Moss Basket, - - - - - - - 1

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Mrs. Henry Botsford, Newtown, Worsted Ottoman Cover, $1
Mrs. H. B. Coley, Weston, Lamp-Mat, Tidy, and Screens, - 1
Miss F. E. Benson, Fairfield, Table Covers, - - 2
Mrs. Betsey A. Wheeler, Huntington, Worsted Ottomans, and Children's Needle-Work, - - - - 2
Miss R. A. Moore, Black Rock, Decoy Ducks, - - 1
Mrs. John Simonds, Darien, best Hair Work, first premium, 3
Georgianna Richards, Westport, second do. - - 2
Miss Margaret J. Dunning, Bridgeport, third do. - - 1
Miss M. J. Shelton, Huntington, Cambric Embroidery, - 2
Mrs. Brewster, Goshen, do. - - 2
Mrs. Lyman, do. do. - 2
John Plumb, Fairfield, Fancy Leather Box, - - - 1

Signed, MRS. DR. SIMONS.
MRS. DR. HUBBARD.
MRS. WM. HALL.
MRS. M. W. BALL.
MISS M. WARDEN.

CLASS VII.

Woolen and Cotton Goods, and other Articles of American Manufacture.

NO. 54.—COTTON AND WOOLEN GOODS.

The Committee respectfully report the following awards:

Bridgeport Woolen Manufacturing Company, for sample of Doeskin Cassimere, Diploma.
do. do. Broadcloth, - do.
do. do. Cassimere, - do.
Wildman, Keeler & Co., Brookfield, Cotton Batts, do.
Wauregan Mills, J. G. Atwood, Sup't, Bleached Cotton Goods, do.
do. do. Brown do. do.

Signed, L. B. TUTTLE.
G. T. ROCKWELL.
W. H. BURTIS.

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NO. 55.—SILVER, PLATED WARE, &c.

The Committee on Silver and Plated Ware, and Jeweler's Work, report the following awards:

W. E. Cornwall, Portland, one Silver Cup, Silver Medal.
John Matthewman, New Haven, one Alarm Bell and Clock, Diploma.
C. Cowles & Co., New Haven, three cases Plated Ware, and Carriage Trimmings. Two cases Pure Silver. Gold Medal.
Wallace & Sons, Ansonia, one lot Silver Plated Chain, Silver Medal.
J. W. Munson, Bridgeport, Samples of Jewelry, Gold Medal.

All of which is respectfully submitted.

Signed, HORACE GOODWIN.
CHARLES PRESTON.
PHILLIP B. SEGUR.

NO. 56.—FIRE-ARMS.

The Committee on Fire-Arms award the following premiums:

Repeating Pistols, Colt's Patent Fire-Arms Manufacturing Company, Gold Medal.
Repeating Rifles, do do. Gold Medal.
Other Fire-Arms, S. C. Miller, New Haven, Silver Medal.

Signed, W. D. BISHOP.
E. W. FAIRCHILD.

NO. 57.—CUTLERY, &c.

The Committee report the following awards:

Holly Manufacturing Co., G. B. Burrall, Agent, Lakeville, Ct., Specimen Pocket Cutlery, and Razors, Silver Medal.
do. Specimen Shears, Silver Medal.
G. W. Bradley & Co., Westport, Ct., Specimen Axes, Diploma.
do. do. do. Draw Knives, Diploma.
Enos L. Dewsnap, West Cornwall, Razors, (discretionary,) Diploma.

Signed, R. TERRY.
CHARLES UNDERWOOD.
A. W. TRACY.

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NO. 58.—HOUSE TRIMMINGS.

The Committee award as follows:

J. B. Clarke, Scott, Cortland Co., N. Y., Davis' Self-Fastening Blind Hanging, Diploma.

B. C. English, Hartford, Patent Blind Fastener, Diploma.

John Osborne, Mt. Carmel, Engraved Glass Door-Plates, Diploma.

Thomas Benton, New York City, Torry Double-Action and Self-Adjusting Springs for Doors, Diploma.

Signed, WM. H. BIBBINS.
R. S. LEAVITT.
A. H. BEACH.

NO. 60.—BRASS WARE.

Wallace & Sons, Ansonia, Brass and Iron Chairs, Brass and Copper Rivets, and Seamless Ferules, Diploma.

Signed, JESSE BANKS.
D. C. WHITTLESEY.
BRADLEY HALL.

NO. 61.—INSTRUMENTS.

The Committee award as follows:

J. W. Munson, Bridgeport, Rubber Syringes, Gold Medal.

D. C. Porter, do. Porcelain Teeth, and Mechanical Dentistry, Silver Medal.

C. C. Burr, Middletown, Trusses, Silver Medal.

Signed, P. S. COLEY.
H. L. W. BURRITT.
PRO. W. A. NORTON.

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NO. 62.—WOODEN WARE.

The Committee on Wooden Ware having attended to the duties of their appointment, respectfully report:

F. Lathrop & Son, Bridgeport, Sample Handles for Axes, Picks, &c., the Society's first premium of - - $1
Silas Hoadley, Plymouth, Set of Baskets, do. - 2
Colt's Patent Fire-Arms Manufacturing Company, Hartford, Sample Basket Willow, a premium of - - 1

Signed, R. B. MARTIN.
E. J. POND.

NO. 63.—BOOTS, SHOES, LEATHER, &c.

The Committee award as follows:

D. H. Valden, Ridgefield, 2 Sides Grained Leather, 1st premium, $5
C. Bissell & Co., Colchester, 2 dozen Calf Skins, 2nd do. 3
H. M. Coe, Durham, best Sole Leather, 1st do. 5
Patent Leather Company, Bridgeport, second best, 2nd do. 3
M. Underwood & Son, Tolland, Leather Belting, do. 3
J. W. & S. C. Beers, Cornwall, one dozen pairs Buck-Skin Gloves, &c., first do. - - - - 3
Bridgeport Patent Leather Company, Lot of Patent Leather, Discretionary do. - - - - - 2
L. Shepard & Son, Norfolk, one-half dozen Extra Bark Skivers, Discretionary do. - - - - - 2

Signed, T. B. TAUNTON.
WM. E. DUNCOMBS.
D. C. WHITTLESEY.

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NO. 64.—HATS, CAPS AND BONNETS.

The Committee award premiums to

Nathan Seeley, Bethel, Soft Fur Hats, first premium, -	$5
R. G. Waterouse, Bridgeport, Hats, second do., - -	3
do. do. do. Caps, second do., -	2
R. Lewis Barton, East Bridgeport, for best Straw Hats, -	5
Miss Emily F. Lockwood, Wilton, Silk Hats, first premium,	5
Mrs. McGeise, Bridgeport, second do., -	3

Signed, PHILIP BARROWS.
CHARLES ROBINSON.
R. TERRY.

NO. 65.—TAILORS' WORK.

The Committee have examined the only article exhibited, being specimens of Boys' Clothing. There being no competition, the Committee have awarded the second premium of $3 to F. A. & L. Clute, of Bridgeport.

Signed, B. W. STONE.
C. W. HATCH.

NO. 66.—INDIA RUBBER GOODS.

The Committee award to J. W. Munson, of Bridgeport, for the best collection of Miscellaneous Rubber Goods, a Diploma.

Signed, SEYMOUR BRADLEY.
W. D. BISHOP.

NO. 67.—STOVES, &c.

The Committee award to C. Cowles & Co., of Bridgeport, for Stove Ornaments, a Diploma.

Signed, F. E. HARRISON.
EDWIN WHITE.

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NO. 68.—PAPER.

The Committee on Paper beg leave to report, that they have examined the articles offered for inspection, and would recommend the award of the following premiums, viz:

To A. Tate & Sons, Trumbull, for best specimen of Straw Board, a Diploma.

To D. & P. N. Fairchild, Bridgeport, for best sample of Printing Paper, a Diploma.

To S. Y. Beach, of Seymour, for Colored Papers, a Diploma.

Signed, JOHN CORNWALL.
HENRY BILL.

NO. 69.—CABINET WARE.

There were only two articles offered for premium, viz:

Two Fancy Stands, by Robert Cameron, of Bridgeport, to one of which we award a Diploma.

All of which your Committee would respectfully report.

Signed, J. E. WHITTLESEY.

NO. 70.—CARRIAGES, &c.

The Committee upon Carriages and Carriage Trimmings, award the following premiums:

For best Double Carriage, J. Mott & Co., Bridgeport, a Diploma.
do. Family do., George Keeler & Co., do. do.
do. Single Top Buggy, E. B. Middlebrook, do. do.

This is the only Top Buggy on exhibition, and the Committee feel bound to award it a Diploma on that account, although the work is of ordinary quality.

For best Open Buggy, Tomlinson Carriage Co., a Diploma.
do. Double Sleigh, E. Leut, Greenwich, a Diploma.

The exhibition of Carriage Wheels is very fine, and the Committee were unable to decide which Wheels of the following parties are the best, and would therefore award a Diploma to each of the follow-

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ing: F. Lathrop & Son, Bridgeport, and G. F. Kimball, New Haven.

The Committee find the same difficulty in deciding upon Carriage Springs, as upon Wheels. But two exhibitors have made entries in this class of goods and their Springs are so similar in quality that we would award a Diploma to each, viz: Tomlinson Spring and Axle Co., and Spring Perch Co.

For the best Coach Lace Trimmings, we award to B. K. Mills & Co., of Bridgeport, a Diploma.

For the best Coach Lamp and Plated Trimmings, we award to White & Bradley, of Bridgeport, a Diploma.

For the best exhibition of Carriage Curtain Lights, we award to C. Cowles & Co., of New Haven, a Diploma.

Signed, WM. D. BISHOP.

NO. 71.—MUSICAL INSTRUMENTS.

The Committee award premiums as follows:

Sommer, Pratt & Co., Ansonia, Melodeon. Diploma.

Wm. Lindeman & Sons, New York, two Piano Fortes. Diploma.

Signed, GUSTAVE J. STOCKEL.
J. W. TERRY.

NO. 72.—MISCELLANEOUS ARTICLES.

The Committee report awards as follows:

M. H. Wheeler & Co., Bridgeport, Distilled Cologne Water. Diploma.

Henry Wales, Bridgeport, Coffee and Spices, premium, $2.

Geo. Gardner, New Haven, Ornamental Hair Work, Wigs and Curls. Diploma.

Mrs. George Gardner, New Haven, Fancy Hair Work. Premium, $2.

E. W. Robinson, Bethany, Helion Light. Diploma.

Thomas Brunton, New York City, Kerosene Oil. Diploma.

B. Alstrum & Co., New York City, Solidified Milk. Diploma.

Signed, P. H. SKIDMORE.
GEORGE IVES.
JAMES STAPLES.

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NO. 72. (A.)—MISCELLANEOUS ARTICLES.

The Committee on Miscellaneous Articles would respectfully report, that they have attended to the duties of their appointment, and would recommend the award of the following premiums:

Charles Hough,	Bridgeport,	Model Chicken Coop, -	$1
G. B. Ambler,	do.,	Specimen Ship, - - -	2
S. Wardwell,	do.,	Specimen Book-binding, -	1
Horace H. Hitchcock,	Fair Haven,	Wooden Chain, - -	1
Eli T. Nichols,	Bridgeport,	miniature Steam Ship, -	1
James Hays,	West Meriden,	small Ship, - - -	1

Signed, JOHN S. YEOMANS.
TURNEY SANFORD.
P. G. COLEY.

NO. 72. (B.)—MISCELLANEOUS ARTICLES.

The Committee appointed to examine and report for premium articles entered upon their books, have attended to the duties of their appointment, and offer the following report:

The samples of Earthen and Stone Ware offered by A. E. Smith, Norwalk, were smooth, handsome specimens, particularly the Air-Tight Jars for Butter and Preserves, and would recommend a Diploma.

The Cut Glass Ware exhibited by White & Bradley, of Bridgeport, the Committee examined, and were highly pleased. The specimens of Goblets, Fruit Dishes, and Carriage Lamps, showed great skill in design and workmanship. The Committee think them a credit to the State, and recommend a Silver Medal.

The Measuring Funnel offered by S. H. Pardee, New Canaan, is a simple contrivance for measuring fluids, economising the use of measures, making one answer the purpose of a full set of measures and funnel. The Committee recommend a premium of $1.

Signed, HENRY STURGES.
PHINEAS R. CLOSE.
CHAS. H. BIBBINS.

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NO. 72. (C.)—MISCELLANEOUS ARTICLES.

The Committee report having attended to their duties as far as able, and submit their report to the Society. They were not able to find all the articles entered upon their book, after repeated and diligent search; and some articles they did find, where there was competition, bore no labels or marks of the patentees, by which they could determine the name of the competitor. Under this state of things the Committee came to such decisions as they were able, and make the following awards:

Purches Miles, Hartford, Patent Curtain Fixtures, in the opinion of your Committee, a really meritorious article. Diploma.

Charles Winship, New Haven, two Refrigerators, of a new patent, of excellent workmanship. Diploma.

David Munson, Indianapolis, Patent Tubular Lightning Rod. Diploma.

Jonah Platt, Milford, Revolving Last Holder. Diploma.

Marvin Smith, New Haven, best Apple Paring and Slicing Machine, which the Committee examined. Diploma.

The Committee noticed an Apple Parer and Slicer in the agricultural tent having no label; and a Meat Cutter from Wm. B. Johnson, New Haven. Mr. Johnson had two Apple Parers entered, and Cyar Goodman, New Haven, one, which could not be found, unless the one named above belonged to one of these competitors. The Committee make no award.

All of which is respectfully submitted.

Signed, ALBERT TYLER.
WM. H. PUTNAM.

CLASS VIII.

NO. 73.—FINE ARTS.

The Committee on Fine Arts report awards as follows:

Oil Paintings.

N. S. Woodin, Bridgeport, "Italian Sunset," -	Diploma.
R. C. Benjamin, Stratford, "Madonna and Child," -	do.
Miss E. Nelson, Bridgeport, Landscape, - -	do.

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Crayons.

Louis Bail, New Haven, Original Crayon Likeness, Silver Medal.
Rev. H. Jones, Bridgeport Copy, " Christ after Guido," Diploma.
Miss Mary W. Lyon, Bridgeport, " Drawing of Child," do.
Miss Harriet Toucy, do. Pupil's Work, do.

Photographs.

G. W. Lewis & Co., Bridgeport, Large, in Colors, Silver Medal.
N. A. Moore, Hartford, Specimen, - - - Diploma.

Sculpture.

Louis Bail, New Haven, Original Medallion Likeness in Plaster, - - - - - Diploma.

Lithographs.

Wm. Stangel, Bridgeport, " View of Bridgeport," Diploma.

Ambrotypes.

W. W. Hammond, Bridgeport, Specimens Ambrotypes, Diploma.

Pearl Painting.

Miss Elizabeth J. Wakeman, Fairfield, - - Diploma.
A. G. Shaver, New Haven, Italian Enamel Paintings, a blending of the Oil Painting and Steel Engraving, do.
do. By a Pupil, Coles' Voyage of Life, - - do.
Morehouse & Barnes, New Haven, Ornamental Painting, do.
do. do. Sign Lettering, do.
R. C. Loveridge, New Milford, Specimens of Penmanship, do.

Signed, S. W. GOLD.
HENRY T. BLAKE.
JOHN M. WILSON.

CLASS IX.

NO. 74.—PEARS.

The Committee respectfully report that they have carefully examined all the specimens exhibited, and have unanimously awarded the following premiums, viz.:

Best 12 var., 6 specimens each, Charles Beers, New Haven, $10
do. 6 6 do. George Cornwall, Milford, 5

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Best dozen 1 variety, Charles Parker, Meriden, - - $1
2nd best doz. 1 var., T. S. Gold, West Cornwall, - - 3
3d best dozen, 1 variety, W. W. Turner, Hartford, - 2
4th do. do. Joseph Eldridge, Norfolk, - 1
Best and largest collection, Charles Beers, New Haven, 10
2d do. do T. B. Griffiths, South Norwalk, 6

All of which is respectfully submitted.

Signed, CHARLES ROBINSON.

NO. 75.—APPLES.

The Committee would report that they have attended to their duties, and submit the annexed list of premiums.

Best 24 varieties, 12 specimens, N. W. Stanley, New Britain.
Best Bushel, Samuel C. Wildman, Danbury.
Second best, Bushel, Jesup Banks, Fairfield.
Largest and best Collection, J. N. Gillette, Burlington.
Second do. Kneeland Dowd, Bethany.
Third do. Dr. L. N. Beardslee, Milford.
Fourth do. David Whittlesey, New Preston.

For several other premiums mentioned in the list, there were no entries.

We regret that the collection of Apples was so small, by no means doing credit or justice to our State, which can make a far better and larger show; nor were the specimens always so fair or well grown as is desirable for those competing for premiums.

We noticed many kinds which were incorrectly named, and others bearing real names not well known; and many of the same kind bearing different names. It is desirable that the nomenclature of this fruit should be more uniform and perfect, and that the same varieties should be recognized by the same name.

In the different collections many apples were noticed which were supposed to be seedlings; some of these were very good, and worthy of dissemination. A history and description of the seedling apples of this State would make an interesting study for any one who has the time and opportunity to give it his attention.

So important is this crop that it is hoped that at future Fairs a greater show will be made; and for the purpose of accomplishing

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this end, we would recommend that the list of premiums be increased.

All of which is respectfully submitted.

Signed, GURDON W. RUSSELL.
STEPHEN HOYT.
S. G. BENHAM.

NO. 76—SPECIAL PREMIUMS.

The Committee award as follows:

Preserved Fruit.

Wallingford Community, first premium, - - -	$5
Hannah W. Hickox, Naugatuck, second premium, - -	3

Pickles.

Hannah W. Hickox, Naugatuck, first premium, - -	5
Silas and Seth Hurd, Huntington, second premium, -	3

Signed, JOHN J. HOWE.
B. B. PLUMB.
E. A. PHELPS.

NO. 77.—FLOWERS.

The Committee on Flowers have attended to their appointment, and beg leave to report. The entries were only twenty-three. We regret the collection should have been so small, as the season has been so favorable for their retaining their freshness and beauty.

We would particularly call your attention to the splendid Bouquet of Dahlias from Mrs. Charles Bradley, of New Haven, not entered for premium.

David Whittlesey, New Preston, Cut Flowers, - -	$2
Cynthia S. Fosket, Norfolk, best Parlor Bouquet, - -	6
J. Mason & Co., Hartford, second best, - - -	4
do. do. do. best pair Hand Bouquets, - -	3

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Rosalie Hart, West Cornwall, Bouquet of Native Flowers,	$3
J. Mason & Co., Hartford, collection of Cut Roses, - -	5
R. Hitchcock, Fair Haven, best Dahlias, - - -	4
James Craig, New Haven, do., - -	2
Mrs. Burr Fenton, Weston, - - - -	1
John M. Rose, Greenwich, collection of Dahlias, - -	2
J. Mason & Co., Hartford, best Verbenas, - - -	4
Wm. N. Underwood, Fairfield, second best Verbenas, -	3
Lucius Jackson, New Milford, one Lemon Tree, - -	2
Wm. Townsend, 2d., New Haven, two Pots Perpetual Bearing Strawberries, - - - - - -	1
Aug. Bagley, New Haven, Perpetual Raspberry, - -	1
Ed. N. Shelton, Birmingham, Hop Tree, - - -	1

Signed, MRS. SAMUEL SIMONS.
" WM. HALL.
" J. T. ANDREW.
" D. S. BRINSMADE.
MISS M. BALL.
" M. WOODEN.
" SARAH CALHOUN.

NO. 78.—FRUITS, OTHER THAN APPLES AND PEARS.

The Committee upon Fruits, other than Apples and Pears, having attended to their assigned duties, respectfully report, that the collection of Fruit exhibited was exceedingly fine, as regards Foreign Grapes raised under glass; very commendable in respect to Peaches; and meager and unsatisfactory in other respects. They regret that many of our most valuable varieties, especially of hardy American and foreign Grapes, were not upon the tables, some of which, notwithstanding the unfavorableness of the season, might have been presented in great perfection. The exhibition of foreign Grapes made up for all deficiencies in other departments. It is especially gratifying to them to say, that in this one department, the completeness of the exhibition consisted not only in the great perfection of individual specimens, but also in the presence of nearly all of the most approved varieties for culture under glass.

The Committee beg leave to direct the attention of exhibitors to an important matter of taste in presenting specimens of any fruit

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for exhibition. Fruit exhibited should be as nearly as possible in appearance as it was when plucked. Almost all kinds of fruit have a "bloom," which if removed, either by accident, careless handling, or design, detracts greatly from the appearance of the fruit to the eye of any person of natural good taste in these matters. Delicate specimens of any very choice fruit should come in cotton, and should, if possible, never be handled but by the stem. If these hints are observed, the fruit-table will present a much better appearance in future.

The Committee would also especially commend the Zinfindel Grape, a foreign variety, which attains higher perfection in the open air than under glass, judging from specimens presented, and though quite acid, possesses a very rich, delicate, and agreeable, though peculiar flavor.

They also take the liberty of calling the attention of the Society to the importance of the want now universally felt of a better assortment of hardy Grapes, and suggest the propriety of offering premiums for the best seedling originated within the State, which shall be hardy and shall ripen earlier than the Isabella under the same circumstances of culture and exposure, confidently believing that hybrids of some of the hardy or half-hardy foreign Grapes, and our own commonly cultivated varieties, may be made, which will furnish to our table a vastly superior Grape to any now to be met with in open culture.

All of which, together with the following schedule of awards is very respectfully submitted:

Carroll Comstock, Norwalk, best dozen Peaches,	$3
D. W. Grant, Bloomfield, second best,	2
C. B. Clark, Monroe, third best,	1
Carroll Comstock, Norwalk, best collection of Peaches,	3
Edwin Godfrey, Easton, best exhibition of Quinces,	3
W. W. Maramore, Birmingham, third do. do.,	1
J. M. Glazier, Hartford, best dozen bunches Isabella Grapes,	3
Calvin Baldwin, Milford, second best do. do.	2
W. R. Bunnell, Bridgeport, third do. do. do.	1
Wm. R. Bunnell, do. dozen bunches Catawba Grapes,	2
J. H. Smith, South Norwalk, best dozen bunches other varieties, open culture,	3

(This premium is awarded for very superior specimens of the Concord Grape, though the Committee withhold their approval of the variety for general culture.)

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Wm. N. Underwood, Fairfield, best and largest collection of foreign Grapes under glass, - - - - $10
Philip Donohue, Fairfield, second best do., - - - 6
Wm. N. Underwood, do., best six varieties, three bunches each, 5
Joseph Eldridge, Norfolk, second best, - - - 4
do. do. do. best six clusters, one variety, - 3
Wm. N. Underwood, Fairfield, second best do. do., - - 2
J. I. Howe, Birmingham, third do. do., - - - 1
Joseph Eldridge, Norfolk, best single cluster of Grapes, (Black Hamburg,) - - - - - - - 1

Discretionary Premiums.

T. S. Gold, West Cornwall, for collection of Foreign Grapes, 2
James Bartram, Black Rock, do. do. - 2
James Harrison, New Haven, six bunches Grapes, open culture, 3
F. Wood, Bridgeport, eight bunches Black Hamburgs, - 1

Signed, EBENEZER JACKSON.
T. H. TOTTEN.
MASON C. WELD.

CLASS X.

Field Crops, Farms and Reclaimed Lands.

NO. 79.—FIELD CROPS.

At the session of the Executive Committee, held at Meriden, January 12th, the reports on Field Crops properly authenticated, were read by the Corresponding Secretary, and awards made as follows:

Mr. NATHAN HART, Jr., W. Cornwall, reports one acre Corn. The soil upon which this crop was raised is a rich friable loam. For forty years previous this land had been under the scythe, and had received during this time no manure save the droppings of the cattle. Twenty-four ox-cart loads of manure from the barn-cellar were applied to this crop.

The land was plowed seven inches deep on the 9th and 11th of

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May. The seed, with the exception of that for three rows of sweet corn, and one of pop-corn, was of the Dutton variety. It was soaked for thirty-six hours in a warm solution of saltpetre and rolled in plaister, and planted May 23d, four kernels in a hill, the hills from two to two and a half feet apart in the rows, the rows three feet apart.

It was hoed three times by hand after the horse hoe, at intervals of eight days, commencing June 13th.

The crop was cut up by the roots during the week commencing September 17th, and husked the first week in November.

The Dutton corn was weighed when husked, and weighed 7045 pounds; 500 pounds of this was carefully weighed after drying a few days, it was then put in barrels to secure it against waste. This was shelled early in December and averaged 80 pounds to 100 pounds of ears of the first weight; thus giving 5636 pounds of shelled corn, which, at 60 pounds, is 93 bushels, 1 peck, and 6 quarts. Of the sweet and pop-corn, at a very low estimate, there could not have been less than ten bushels of ears or five of shelled corn, which, added to the above would make 98 bushels, 1 peck, and 6 quarts.

The value of crop, 98 bushels, 1 peck, and 6 quarts, at 5 shillings per bushel, - - - - - -	82.68
Two loads Pumpkins, - - - -	2.00
Keeping 15 cows exclusively on the stalks 2½ weeks at 50,	18.75
	$103.43

Plowing and harrowing the same, - -	$4.00	
Planting, - - - - -	1.50	
Three times hoeing, $2.50 each, - -	7.50	
Harvesting, weighing, and storing, - -	12.50	
Interest on land, - - - -	6.00	
One-half manure, - - - -	6.00	
		$37.50
Balance profit of the crop, - - - -		$65.93

Signed, NATHAN HART, JR.

To Mr. Hart was awarded the first premium of - - $15

MR. WM. H. PUTNAM, of Brooklyn, reports one acre of Indian Corn, cultivated upon a wet black loam, with a very heavy compact

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subsoil, which had been for more than three years previous under grass with no manure. Sixteen full loads of stable manure from under cover were plowed in, and ten loads of compost made from fermented stable and hog-manure, well mixed with rather poor summer made yard-manure, were put in the hill. My land is plowed eight inches deep; and if it is cold and wet, suitable manure is applied in the hill, and the corn dropped upon it. The land is furrowed three feet, and corn dropped two and one-half feet apart in the furrow. Plaister is dropped upon the corn. It undergoes no preparation. At least six quarts of seed are used to the acre. This crop was of the Rhode Island premium corn, planted May 27. The corn is cultivated and hoed twice, and thinned to four spears in the hill. About the middle of November the corn is cut up by the roots and stacked. The yield of this acre was 95½ bushels of corn, weighing 56 pounds to the bushel, worth 80 cents per bushel for fattening hogs, provided I get 8 cents per pound for my pork, - $76.40
Value of fodder, - - - - - 15.00

Total value of crop, - - - - - $96 40

Carting and spreading manure, - - -	$5.00	
Plowing, - - - - - -	3.00	
Harrowing and furrowing, - - -	1.50	
Planting, - - - - -	2.50	
Hoeing, - - - - -	6.00	
Cutting up at the ground, - - - -	2.50	
Harvesting, - - - - -	6.00	
		26.50

Total balance, profit of crop, - - - - $69.90

Signed, W. H. PUTNAM.

To Mr. Putnam was awarded the second premium of - $10

MR. JAMES A. BILL, of Lyme, reports one acre of Indian Corn. His soil is a gravelly loam, cultivated the two previous years in corn, the year before in grass. Forty loads of barn-yard manure were plowed in deep for each crop of corn; and a dressing of 150 bushels of ashes the first year of corn. No manure was applied to the land when in grass. Forty loads of manure were used the present year. The land was plowed June 1st, and planted June 5th with Dutton corn, three and one-half feet apart each way. Six quarts of seed were used after soaking until it was swelled and nearly ready to

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sprout, and planted June 5th. Ten days after planting it was hoed; again the last of June; and the third time about the middle of July. The land is left perfectly flat, no hills being made. The crop was cut September 30th; husked from middle to 20th of October; the yield was 89 bushels shelled corn weighing 58½ pounds to the bushel.

Crop valued, corn and stalks, at - - -		$95.00
Plowing, man and team one day, - -	$2.50	
Planting and hoeing, 4 days, - -	4.00	
Harvesting, - - - - -	3.00	
		$9.50
Total balance of profit, - - - -		$85.50

The value of manure is not estimated, as it was old stock ground. It was worked cheaply.

Signed, JAMES A. BILL.

To Mr. Bill was awarded the third premium, - - $5

MR. W. J. PETTEE, of Lakeville, reports one acre of Spring Wheat, on a clayey loam. The three previous crops have been corn, potatoes, and corn-fodder. Fifteen loads of barn-yard manure were applied to the land a year ago; none to the present crop. The land was plowed the first week in May, and three bushels of seed, after soaking in brine, were sowed broadcast in the usual manner.

Nineteen bushels of wheat resulted, valued at $1.40 per bushel,	$26.60
One day plowing, one day harrowing, one day harvesting,	5.00
Total balance profit, exclusive of cost of seed, and interest on land, - - - - - -	$21.50

Signed, W. J. PETTEE.

To Mr. Pettee was awarded the second premium, - $5

MR. JAMES A. BILL, of Lyme, reports one acre of Barley, on dark gravelly loam, well underdrained, on which corn had been raised for the three previous years; before which time it was a waste barren pasture. From 30 to 40 loads of stable manure had been applied with each crop of corn, and a dressing of 100 bushels of ashes was applied one year. No manure was used with this crop. The ground was plowed twice the last of April, and two bushels of two-rowed barley, from which the foul seed had been washed, were sown

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broadcast the second week in May. It was harvested the first week in August, and yielded 29 bushels; this, at $1.25 per bushel, amounts to - - - - - - - - $36.25
Cost of culture about - - - - - 8.00

Total balance of profit, - - - - - $28.25

Signed, JAMES A. BILL.

To Mr. Bill was awarded the second premium of - $5

MR. A. H. JEROME, of Bloomfield, reports one and one-half acres and eight rods of gravelly loam in Rye. This land had been under grass, corn, and tobacco, for the three previous crops. Thirteen loads of manure had been furnished in the hill to the corn and tobacco. Plowed once and harrowed once about the middle of September, and one bushel of large plump rye was sowed broadcast to the acre and harrowed in. The crop was harvested between the 15th and 20th of July, and gave 48 bushels and 3 pecks. It was reaped and thrashed by hand, and weighed 2925 pounds.

Cost of cultivation, plowing and harrowing, two days, - $3.25
do. harvesting and thrashing, eight days, - - 12.00

$15.25

Signed, A. H. JEROME.

To Mr. Jerome was awarded the first premium of - $8

MR. WATTS H. BROOKS, of Goshen, reports one acre of Buckwheat on a gravelly loam which had been pastured the three previous years; plowed the second week in June. One and one-fourth bushels of seed was sowed broadcast after the ground was harrowed. It was then harrowed twice the 30th of June. The grain was cut the 15th of September, and thrashed the 28th and 29th of September, and yielded 38 bushels and 2 quarts, weighing 50¼ pounds to the bushel.

Value of crop at 50 cents per bushel, - - $19.02
Cost of culture, - - - - - 7.00

Total balance profit, - - - - - $12.02

Signed, WATTS H. BROOKS.

To Mr. Brooks was awarded the first premium of - $5

MR. H. M. HART, of West Cornwall, reports one acre of White

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Oats on a gravelly loam. The year previous this land was planted to corn; before this it was under grass. Twenty loads of green stable manure were plowed under the turf for the corn crop. The land was plowed without manure as soon as the frost was out of the ground, and again the last day of April. Three and one-half bushels of oats were sowed broadcast, and harrowed in the last of April. The crop was harvested about the middle of August, and gave 48¾ bushels, worth 45 cents per bushel, - - - $21.93
Seventy-five bundles of Straw, - - - - 2.00

$23.93

Twice plowing, - - - - -	$3.00	
Sowing and harrowing, - - -	.50	
Harvesting and thrashing, - - - -	3.00	6.50
Total balance of profit, - - - -		$17.43

Signed, H. MILTON HART.

To Mr. Hart was awarded the second premium of - $5

MR. W. H. PUTNAM, Brooklyn, reports one-quarter of an acre of Sugur Beets planted on a redish dry loam, which had been cultivated for two crops of corn; previously in pasture. Ten loads of good manure composed of two-thirds hog manure and one third horse manure, were given to each crop of corn. Twelve loads of thoroughly fermented compost of horse and barn-yard manure were applied to the land this year. It was plowed very deep on the 6th of June, and planted with white Silesian Sugar Beet on the 8th of June in drills 2½ feet apart. In these drills, before the seed was planted, a compost of bone-dust and superphosphate of lime was distributed by Billing's corn-planter, the hand drill barrow following with seed. A cultivator was used between the rows, and the plants thinned to eight inches in the rows. The crop was harvested the first week in November, and yielded 227 bushels, allowing 60 pounds to the bushel; worth 25 cents per bushel, - - $56.75
Cost of culture and fertilizers, - - - 15.00

Total balance of profit, - - - - $41.75

Signed, W. H. PUTNAM.

To Mr. Putnam was awarded the first premium of - $5

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MR. W. J. PETTEE, Lakeville, reports one-quarter acre Ruta Baga on a clayey loam, which had been under cultivation the three previous years in corn-fodder, roots, and wheat, and has annually received a dressing of twenty loads of manure to the acre. The present season thirty loads of fine well-decomposed barn-yard manure were applied to the acre, and the land was plowed June 15th. Skirving's improved Ruta Baga seed were used, and two pounds of seed to the acre was sowed June 20th with a drill barrow, two feet apart; hoed once by hand when small, once with a horse-hoe, and each time weeded by hand. Harvested November 10. The yield was 325 bushels, or 1300 per acre, ascertained by weighing; valued at fifteen cents per bushel. Cost of culture, $40 per acre, exclusive of manure and interest on land.

Signed, W. J. PETTEE.

To Mr. Pettee was awarded the first premium, - $5

MR. W. J. PETTEE also reports one-quarter acre of carrots on clayey loam, which had been under clover, spring-wheat, and carrots for three previous years, with twenty loads of manure to the acre each year. Thirty loads to the acre were used with this crop. The land was plowed twice; April 15th and May 25th. The Long Orange Carrot seed was used—three pounds to the acre; sowed May 25th with a drill barrow eighteen inches apart; hoed by hand, and weeded three times; harvested November 1st. The yield was 210½ bushels, and sold for $52.56. The cost of culture is $45 per acre, exclusive of value of manure and interest on land.

Signed, W. J. PETTEE.

To Mr. Pettee was awarded the second premium, - $5

MR. G. MCMAHON, of New Milford, reports one acre of Potatoes on sandy land, which has been under meadow previous to this crop. Twenty-four loads of muck and sixteen of yard manure were used for this crop. The land was plowed twice; once in the fall of last year. Four and one-half bushels of Prince Albert potatoes cut in small pieces, leaving two eyes on a piece, and two pieces put in a hill. The ground was marked both ways, and seed dropped at the intersections. Planted May 10th. Plowed between the rows once, and hoed once with cultivator. The potatoes were dug from October

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1st to the 10th, and gave 243 bushels; all sold for cash at $1.62 per bushel, - - - - - - - $393.66

Expenses, 4½ bushels of seed, - - -	$6.75	
Twenty loads of manure, - - -	15.00	
Tillage, - - - - - -	10.00	
Digging, - - - - -	8.00	$39.75
Total balance of profit, - - - -		$353.91

Signed, GEORGE MCMAHON.

To Mr. McMahon was awarded the first premium.

Mr. Lewis Burr, of Black Rock, reports one-quarter acre of onions on a rather heavy soil with a very strong bottom. This land has been cropped with onions for more than twenty-five years. Ten loads of well-rotted manure from the hog-pen and barn-yard, with all the rich earth that can be conveniently procured, are applied each year. The ground is plowed once, eight inches deep. The seed, a red onion, called the egg onion, was planted May 1st—one pound was used. The crop was harvested September 10th, and gave 190 bushels, worth 40 cents per bushel, - - - - $76.00
Expense of culture, - - - - - 15.00

Total balance of profit, - - - - - $61.00

Signed, LEWIS BURR.

To Mr. Burr, is awarded the first premium of - $5

NO. 80.—FARMS AND RECLAIMED LANDS.

The undersigned, Committee on Farms and Reclaimed Lands, beg leave to submit the following report: There were twenty-one entries in our department, viz:

Philip Scarborough,	Farm over 100 acres,	Brooklyn.
Samuel Prentice,	Farm under 100 acres,	Greenville.
do.	1 acre Reclaimed Swamp,	do.
do.	Underdraining,	do.
James A. Bill,	Farm under 100 acres,	Lyme.
do.	Reclaimed Swamp,	do.
do.	Rocky Land,	do.
do.	Underdraining,	do.

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Elisha Dickerman,	Farm under 100 acres,	Orange.
do.	Sand Barrens,	do.
Steph. Hoyt and Sons,	Farm over 100 acres,	New Canaan.
George Osborne,	Farm under 100 acres;	Redding Ridge.
D. A. Nichols,	Farm 100 acres,	Monroe.
B. H. Andrews,	Reclaimed Rocky Land,	Waterbury.
Samuel French,	2 acres Reclaimed Swamp,	do.
do.	Rocky Land,	do.
B. K. Wheaton,	2 acres Reclaimed Swamp,	do.
John C. Booth,	4 acres Underdraining,	do.
do.	3 acres Rocky Land,	do.
Dr. C. Bullock,	Farm 50 acres,	Hartford.
do.	Rocky Land,	do.

We entered upon our duties early in September, and devoted eight days to the examination of the Lands entered for premium. We would take this occasion to express our high gratification at the manifest improvement in our farming interests, visible not only in the farms that we visited, but in all that we saw in our journey, which took us into every County in the State. We saw most indications of progress in Windham and New London Counties, and along the seaboard.

Your Committee would make particular mention of the Farms of Samuel Prentice, James A. Bill, and Stephen Hoyt & Sons, as good examples of what may be done for poor, worn-out Farms, by a judicious use of skill and capital. We first visited the Farm of

PHILIP SCARBOROUGH, BROOKLYN.

The proprietor belongs to the old school of Connecticut farmers, and the most of his improvements date back to the days of Fessenden and the old New England farmer—a work that did much to help the husbandry of the few who read its pages. He acknowledges himself a book-farmer, though of the most practical sort. His place is the homestead of the Scarborough family, and he has bought out successively all the heirs, who were quite numerous, and has raised up a family of children who are now all scattered. These achievements—buying a farm and making it—while supporting and educating a family, were enough to tax the energies of a man to the utmost, as all farmers know, who have attempted it.

The farm lies upon the south-eastern slope of a high rocky ridge, in the northern part of the town. Its location gives it the morning sun, which is a great advantage to nearly all farm-crops. The rock

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crops out frequently in broken ledges, and much of the surface is furrowed by deep ravines. Some of the hill-sides are too steep for profitable cultivation. The farm on the east side terminates in a swamp, which is partially reclaimed. Nearly half the hay cut upon the farm is from swales and improved swamp land. The farm consists of 166 acres; under the plow 26; in mowing 30; and in orchard 7. There are something over 4,000 rods of heavy stone wall upon the farm, most of it heavy, and a good deal of it faced and capped. A large part of it dates back a score of years or more, and is still in good condition. Several pieces of heavy stone work have been done in bridging the ravines, and in making large stone drains through the swales.

The most of the land under cultivation and in mowing, has been cleared of rock and small stones, so that a mowing machine could be used to good advantage. The labor expended in clearing the land of stone has probably cost more than the price of the land fifty years ago. Yet upon this advanced cost the products now pay the interest much better than they did then. The improvements have been made gradually, and in such a way as to pay for themselves and enrich the owner.

The garden, though quite too small for our taste, was in good condition, and much better stocked with well-grown vegetables and fruits than we generally find upon the farm. It had its girdle of fruit trees and vines around the walls, leaving the center to be cultivated by the plow. He plants early potatoes in alternate rows with the sweet corn, and thinks he gets better results. The variety of sweet corn cultivated is Burr's, a large kernel with many rows. It is an excellent sort for the garden. The Isabella grape usually ripens in this exposure. We found here also a large white native grape, said to be excellent, but we have no faith in any of these natives. There were plum and pear trees in the garden, and busy hives of bees manufacturing their sweets under the wall. These hives occupied so little room, and gave so little trouble, and were so productive, that we wondered that every farmer does not keep bees.

Granger's Grist Mill attracted our attention under the shed beneath the corn-crib. This struck us as one of the best arrangements for a dairy farm, that could be devised. The whole establishment, ready to work, cost but thirty dollars. It is turned by horse power, all under cover, and the grain can be ground in rainy days, when so many are pressed to find profitable work for their help. A grain leader came down from the crib above, conducting the grain into the

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hopper, and saving all trouble of moving it after it is threshed and put into the bin. It will grind about four bushels an hour, sufficiently fine for feeding purposes. With corn at three cents a quart, and the usual mill-toll of three quarts to the bushel, this saves thirty-six cents an hour, which is very good pay for rainy weather. The man and horse sent to mill, may just as well be used at home in grinding, and have a much dryer time. The only objection to this course that we can now perceive, is, that the proverb concerning the fatness of miller's pigs, would have to undergo some modification.

Manure-making receives careful attention, though some of the arrangements for this purpose are defective. The pig-stye and barn-yard lack coverings for the protection of manures. The pig-stye was about to be remodeled, and the animals will henceforth be fed under cover. The droppings from the poultry roosts, and the urine and wash from the house are carefully saved for the compost heap. This compost is considered much the best fertilizer made upon the farm. The annual product of manure is over 400 loads.

The tool-house was a simple structure, mostly his own work. It was dug into the hill-side and stoned upon three sides, making a shed about 22 by 18 feet. Above this was set a roof with a floor. The entrance was from one of the gable ends. The carts and large tools were kept below, the smaller ones above. We found here Delano's horse rake—a tool that is held in high repute by all the farmers in this region, and considered the best. Here also we saw the Billings' corn planter, which plants, drops, fertilizers and covers corn at one operation. It saves five-sixths or more of the labor, and plants the corn at a more uniform depth than it can be done with the hoe. The whole outlay for this building did not exceed $50, and it pays the interest on a much larger sum by keeping tools from the weather, and keeping them where the owner can lay his hand on them just when they are wanted. Not half the farmers in the State have a tool-house. Let them learn a profitable lesson here.

The barn is a few rods too far down the hill, and the arrangements for feeding, and saving manures, is not near so good as it would have been with a cellar under all the barn buildings. The structure is old and hardly does justice to the proprietor's present skill in husbandry. The yard is deficient in sheds, and much of the manure is lost for want of absorbents.

The stock of cows is mostly grades of the Ayrshire, Devon, and Durham blood. The yield is about three hundred pounds of cheese to each cow. The season has been better than usual for the dairy.

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Little butter is made except for home use. He has a fine lot of yearling half-blood Durhams from the Cleveland bull, which promise much better than any thing we saw in the herd. With those fine-limbed and comely creatures before him, we wondered that he could ever experiment again with a grade bull as a breeder. Our stock of cows is to be improved only by full-blooded bulls.

We are glad to find Corn and Sorghum for soiling upon trial, on the same kind of soil side by side. It is surprising to see the rapid increase of corn cultivation, for feeding green. It seems to be a part of the system now of all good farmers in this region. Mr. Scarborough feeds only at noon, after the cows have eaten what they will of grass. The sweet corn tempts them to eat still more, and the result is a larger yield of richer milk. He thinks the secret of good milkers is a full supply of nutritious food. The Sorghum was looking in good condition, was as bulky as the corn, and was generally preferred by the cows. This green fodder was fed out in an adjoining lot. Most of the manure was of course lost. It is a question, whether the extra labor required to bring this fodder to the barn, would not be more than paid for, by the manure that would be saved in the stables. He thinks this feeding with green fodder makes nearly a quarter difference in the quantity of milk in the latter part of the season.

Corn, oats and rye are the principal grains cultivated. Corn yields about 40 bushels to the acre, oats 35, and rye 20. On a light soil, he got an excellent crop of rye this year, by using a light dressing of compost made of muck, night-soil and hen-dung. He has a very high opinion of this compost.

The reclaimed swamp, which was bogged, and covered with gravel some twenty years since, is beginning to relapse into sour grasses, for want of more thorough drainage. It is well situated for drainage, and needs tile drain at distances of forty feet over the whole surface. From another part of this swamp he procures a large supply of muck, though he has to draw it nearly half a mile up hill. Muck is one of the institutions in great favor in all this region. There is a large tract of swamp land lying below Mr. Scarborough, for nearly a mile, that might easily be reclaimed, if all the proprietors would join in the work. A brook already flows through it, which would only need to be made straight, and deepened about three feet, to give the most satisfactory results.

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Statement of Philip Scarborough, Brooklyn.

My farm consists of 166 acres, including 24 acres of wood-land, leaving 142 clear. The soil is a yellow loam and peat. I have owned it 47 years. There are 20 acres of peat, with 70 of pasture; 15 acres of low meadow, yielding 2½ tons per acre; 20 acres of upland mowing; 8 acres this year in Indian corn; 2½ acres of rye, giving 20 bushels per acre; 8 acres of oats, 30 bushels per acre; 2 acres of wheat, yielding 12 bushels per acre, (bad seed); 1½ acres potatoes, not dug, estimated at 90 bushels; 8 acres of orchard, 100 bushels of apples. I have 19 cows, mixture of Durham and Devon with native; 11 heifers; 11 heifer calves; 4 oxen; 2 bulls, one yearling, one calf; 2 oxen and 2 cows, fattening, not sold, estimated wt. 2600; 10 calves, 5 weeks old, worth $7 per head; 1 horse; 28 swine, 11 old and 17 pigs, none sold, estimated value, $242. I have made 6,000 lbs. cheese, sold at 11 cents; 200 lbs. butter at 30 cents. The value of my buildings is $2,600. Water for stock is obtained from a cistern in barn-yard; at the house from a well. I employ one man by the year at $155; 2 men for 7 mouths at $13; 1 for July at 8s. per day. I use yearly an average of 100 bushels of ashes. I use Delano's wheel rake, and various kinds of plows, viz: Ruggles & Mason's deep-tillers, Robinson, Titus, and side-hill, &c.

My mode of plowing is about 8 inches deep; hoe first and last of June, leaving the ground level, taking good care that the ground is all deeply stirred, that the atmospheric influence may more readily act on the plant; distance 3 feet wide, 22 inches in the drill, leaving the last hoeing 3 stalks in the hill. 1 bushel and 1 peck for rye, 1½ for wheat, 2½ for oats, 21 quarts of buckwheat, are the best quantities I have ever found per acre. Seed down in the Spring ½ bushel red-top, 1 peck herds-grass, 8 lbs. clover, to the acre, frequently using a top-dressing of peat made of night-soil, ashes, lime, and salt, which tells a good story at harvest time.

Mode of making and saving Manure and usual annual amount made. I make 400 loads of manure annually, composted with peat, muck, and loam, principally made under cover.

Mode of Fattening Pork. I use cooked food for swine in cold weather, with a little corn at noon.

Improvements. During the 47 years of farming, laid 4,000 rods of wall, 200 rods of drainage, 8 acres orcharding, one mile of forest-trees beside the road, one rod apart. All the upland reclaimed from

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a barren state to good grazing and mowing land, together with various other improvements in buildings and fixtures.

The improvements within the year are a slaughter-house, carriage-house, an orchard consisting of 100 trees, and a small vineyard in progress.

Mode of reclaiming Swamp Land. One piece of 5 acres swamp, was treated to a complement of 300 loads per acre, which gives me a return of 3 tons per acre—quality almost equal to upland. Cost of reclaiming about $30 per acre; gravel very handy. The remainder of my low-land not costing as much yet, but constantly improving it.

Mode, amount and cost of Underdraining. The expense of underdraining I will not charge in the account; the clearing of the land of stones I consider equal to the cost.

Mode and cost of reclaiming Sand Barren. During the 7 years since I purchased this lot of 5 acres, which was a sand barren, plowed it the first year by plowing in 40 loads per acre of compost, and planted with corn; second year planted with corn and treated in like manner in the Fall; sowed with rye and seeded with clover and herds grass and red top; mowed two years, and last year plowed again 8 inches deep, with a larger quantity of manure added; this year laid to grass, and a more beautiful sight I have never seen of grass kind.

FARM OF SAMUEL PRENTICE.

Mr. Prentice has only had this place under improvement for three years, and many of his improvements are not yet completed. Three years ago his farm did not support the family of the man to whom it was rented. He had occupied it for twenty years, and it was a fair sample of a skinned farm, much of it overgrown with brush, and all of it greatly needing the hand of a master. Mr. Prentice has wrought a very great change in three years, and is beginning to reap the reward of his labors.

Statement of Samuel Prentice, of Greenville.

I have 148 acres, one-third river land or loamy, the rest hilly, sandy and wood I have owned it 3 years in February, 1858. There are 15 acres of swamp, (10 we are reclaiming,) 75 wood and brush; 5 acres of peat and muck; 40 acres wood, and 35 wood and brush; 23 in pasture and 5 acres of sand barren. I have 1½ acres

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of low meadow, which gives 1 ton of hay; 12 acres of upland meadow, which cuts 10 tons of hay. I have this year 11 acres of corn, which gives 412 bushels; also, 1¼ acres for feeding green; 6 acres of rye, not all thrashed—probably we will have 100 bushels; 8 acres of oats, mostly blasted, yield not more than 60 bushels; 4 acres buckwheat, yield 61 bushels; 1 acre barley, about 20 bushels; 2½ acres potatoes, 268 bushels. Besides the above I harvest 55 bushels carrots; 70 bushels beets; 180 bushels turnips; 30 loads pumpkins. I have gathered 138 bushels apples, and set the last year 72 trees, pear, peach, cherry, &c., but no yield this year. My stock consists of 3 cows, 1 Devon and 2 natives; 4 oxen; 1 Devon bull calf; 1 fat cow, weight 590, worth 7½ cents; 2 calves, 5 weeks of age, value $14; one horse; 8 winter hogs, part Suffolk and Cheshire; 1 Suffolk boar; 8 fat hogs, whole weight 2100, at 8 cents, $168. Grain sold amounts to $175. I have made 200 pounds butter, 23 cents per pound, $46; eggs sold, $6.50; green corn, peas, beans, squashes, &c., $50. My barn and sheds cost $1,000; swill-house, hoggery, hen-house, $800; repairs on house, $1,000. Water for stock obtained from brooks and river; for the house, from well. I employ 2 men by the year at $300 per year; 2 men worked on stone part of the time, and 2 or 3 at fencing by the day, besides carpenters, masons, &c. I have used about 1 ton of guano and 12 casks of plaster. I use common plows.

System of Rotation, Culture, etc. My system of plowing is to plow my swamp lands in Fall, deep as we can, being obliged to use a very large plow and six oxen, and usually we have also plowed some common sward land, in the Fall. Our swamp land is so very tough, after harrowing over, &c., we can only get buckwheat the first year; then we have plowed again in the Fall, after cutting buckwheat, and put in manure. In the Spring, by plowing again, always quite deep and harrowing, we get it fit for corn. We plant from the 20th of May to June the 10th, as our land admits. The last season being very wet, we planted considerable in June. We plant Rhode Island White and Yellow, R. I. Premium, King Phillip, &c. R. I. White and Premium gives the best yield. We put our corn 3½ feet each way, 4 kernels in a hill, hoe 3 times, spread manure, and put a small quantity of guano and plaster around the corn in the hill.

Potatoes planted from 1st to 20th of May; manure, barn-yard, compost, &c.; spread before plowing; some of our ground plowed twice and some only once, then well harrowed, hills about 3 feet

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apart each way. Potatoes do better, we find, on loamy soil, not very moist.

Buckwheat is grown wholly on our toughest land; we use some guano; we sow rye on our sandy land; we also give that some guano and ashes, but our confidence in ashes is getting to be much stronger than in the guano. Ruta baga turnips are grown on pasture, bush-land cleared up, dug up and plowed. Manure with ashes, some guano and some barn-yard manure. Beans are grown on our sandy land, manured with barn-yard manure and ashes. The oat crop gave a very heavy growth of straw, but blasted.

Our crop of corn being only 412 bushels, is far short of last year, we having as much ground, less 2 acres, as last year, when our crop was a little over 800 bushels. We believe this is owing in a great measure to the coldness and lateness of the season, some of it, the ground being very wet, was badly eaten by the wire worms. Our potato crop is far short of last year, but not any rot of any account. We spent full as much time in preparing soil, and manuring full as well as last year, and the weeds were as well disposed of, but the crops yield much less.

Mode of making and saving Manure and usual annual amount made. Our stable manure goes into the barn-cellars and is thrown out in the Spring and spread before plowing. We get out in the Summer about 100 loads of muck and stable manure, having about two-thirds muck and one-third manure, heap in large heaps, mixing a little lime, &c., and in the Spring just before plowing, we spread it on our dryest land. Aside from the muck we make about 75 loads of other barn-yard and 25 loads of hog-pen manure.

Mode of Fattening Pork. Our hogs have been kept until a few weeks in out-door pens, but having finished our swill-house, they are now all fed and sleep inside. Our Summer feed is some sour milk, provender, meal, &c.; in the Fall we feed green corn and stalks as long as they will eat it clean; boil small potatoes with pumpkins and meal, and since our small potatoes are gone, we feed meal and provender, corn, buckwheat, oats, or some rye mixed; the meal is scalded and fed, mixed nearly as thick as pudding, to our fattening hogs, and thinner to our wintering hogs.

Improvements. Since I came in possession we have expended about $2,800 in buildings, cleared up swamps, wood and brush on nearly one-third of the farm, built stone walls and fence on a dry foundation, between and around many of our lots, ditched hundreds of rods, reclaiming 10 acres or more of waste swamp land, and much

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more waste bush up-land. Our crops for two years past are almost wholly from land which was useless when I came in possession.

One-third or more of the above improvements on the land have been made the past season.

Swill-house $800, and repairs on house $1,000, the past season.

Mode and Cost of Reclaiming Swamp Land. Our first object was to clear the land or swamp of wood and brush, being obliged to cut and clear in winter, on account of water and mire. In the Summer, or August and September, and until November, we drained with ditches 3½ feet wide at top, and 2½ on bottom, for the main drains, on the lowest part of the lot or swamp, being 3 or 4 feet deep. We have stoned some at the sides, the others we expect to when we can get to them; some of them we cover over; some are for fence or division between lots. Aside from these main drains, we dig smaller drains and fill up with small stone on each side leading into the main drains. I say fill—we fill up to about 15 or 18 inches of the top, and then put on tough bogs and stamp them down and then cover with soil. We are then ready to put in the big plow with 6 oxen, as I have spoken of on foregoing page. From much of the above swamp land, after plowing over the first time, we find it necessary to cart stumps and roots from 25 to 30 or 40 loads per acre. They were carted to the dry, or side-hill lands and burnt, and ashes spread. The expense of reclaiming the above lands, with plowing first time, about $30 or $35 per acre, which we now value as our best land.

Sandy or Barren Land. We have improved by clearing wood and brush land, digging and plowing up roots and burning bushes, &c., on the ground, spreading ashes, bringing on more ashes with some barn-yard and compost manures, and getting in a crop of ruta baga the first year, (putting in a little guano,) which I have, as before named, lost much confidence in, and after that crop with corn or potatoes. The expenses are probably about $20 per acre.

JAMES A. BILL, LYME.

Mr. Bill's farm was originally a very poor, rented farm, stony, overgrown with trees and brush, and the fences broken down. He has expended a good deal of capital judiciously, in clearing swamps of brush, meadows of rocks, underdraining and fencing. The stone walls are among the best in the State. The buildings are recently erected, and are in excellent condition.

The Marsh, which he entered, lies upon both sides of a creek flowing into the Connecticut, some five or six miles from its mouth.

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Before the improvement the tide flowed twice a day into the creek, and at all high tides the meadow was flowed. Of course only the flags and coarse grasses that love salt could flourish. The difficulty of cutting and curing the hay made the land almost worthless to the owner, and he was glad to sell it for twenty dollars an acre.

The embankment is made in the most thorough manner. It consists of double walls, some twelve feet apart, and filled in with earth. On the inside of the embankment runs a row of plank driven deep into the mud, and battened so that no water can get through except at the culvert. The culvert is made of heavy plank running the whole width of the dam, and about six feet wide. It is made perfectly tight, so that all the water is compelled to flow through it. At each end of the culvert is a strong bulk-head, and at the bottom a tide gate the whole width of the flume, The gates are some two feet high, and are hung upon strong iron hinges. The current of the creek pushes them open, and the current of the tide shuts them so that no salt water can flow in, or at least not enough to do any damage. While the tide is up, of course, there can be no flowing out of fresh water, and all that runs in the stream accumulates in the ditches. In case of heavy rains in the winter and spring, this will sometimes lead to an overflow; but in summer, while the grass is growing, the ditches will hold all the back water; and even in case of overflow, the fresh water laying upon the marsh an hour or two would not damage the grass.

This marsh, though not reclaimed perfectly, so as to bear root and grain crops, is now bearing grass of good quality, and makes hay nearly equal in value to any upland hay. We regard this experiment as one of great value to the farmers of this State. There are thousands of acres all along the Sound, and the tide-water streams, that might easily be brought into grass, and make the best mowing-lands in the State.

The barn of Mr. Bill was well arranged for making manure, in most respects. The yard lacked sheds upon its walls, in order to make it perfect. Less muck is used in the making of manures than is desirable. There are several out-barns in different parts of the farm, which we consider questionable economy. Many of the meadows are so cleared up that the mowing machine could be used to very good advantage; but this implement has not yet made its advent here. The spirit with which Mr. Bill has entered upon his improvements assures us that he will go on unto perfection.

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Statement of James A. Bill, Lyme.

There are 95 acres of land in my farm; a gravelly loam. I have owned it 9 years. It is divided as follows, viz.: 8 acres of swamp, 15 acres of pasture, 15 acres improved low meadow which cuts 30 tons of hay, 35 acres upland which cuts 60 tons of hay, 6 acres of Indian corn, 60 bushels average yield per acre; 3 acres of rye, 9 bushels average per acre; 2 acres of barley, 29 bushels to the acre; 2 acres of wheat, 17 bushels to the acre; 3 acres of potatoes, 90 bushels to the acre; 3 acres roots, 80 bushels to the acre with other crops; 1 acre in garden, sugar cane, &c.; 5 acres in fruit trees, no yield this season. My neat stock consists of 5 Devon cows, 3 years old and over; 8 heifers under 3 years; 3 calves; 4 oxen over 3 years old; 4 oxen under 3 years; 4 bulls, 3 calves and 1 two years old. I have besides, 1 horse; 10 swine, Suffolks and crosses, over 1 year old, and 20 pigs; 100 sheep, small flock South Downs, and remainder Spanish Merinos. My receipts the past season for wool, swine, and for grain, mostly corn, are $968; $40 for poultry and eggs; $20 for white beans; $25 for Chinese sugar syrup; 80 cords wood sold at $4 per cord, $320; 3000 hoops for $64. Buildings appraised, to obtain insurance, at $8000. Water for stock from springs and streams; for the house from well and cistern. I employ 1 man for $150 for the year; 1 for 8 months at $120; and hire for 60 days haying at $80. I use annually 500 to 1000 bushels ashes. Delano's horse rake is used, and Backus & Barstow, Miner, Horton & Co., and Woodruff & Beach's Hartford plows.

System of rotation, culture, &c. My course in plowing is to go beam deep; if possible, to do so in all cases. For corn I plow my ground the last of May or first of June, and plant always the 5th of June. Prior to planting I usually spread on forty loads of barn-yard manure to the acre, and bush in 100 bushels of ashes. Corn is planted 3½ to 4 feet apart each way, which admits the horse-plow and cultivator. I soak my corn prior to planting; and in two weeks from time of planting I usually weed; and half-hill 10 days later; and hill about the middle of August, or I might say I hoe the third time the middle of August, never making any hill at either time of hoeing, leaving the ground at all times as level as when bushed for planting. If the turf becomes sufficiently rotted, I never plant a second time, but sow either spring wheat, oats or barley, and seed down with clover, timothy, and red-top, using 8 pounds clover, one-half bushel timothy, and one bushel red-top, to the acre. For sow-

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ing and seeding as above I use about two bushels to the acre of oats, barley, rye, wheat, &c., but vary some when the land is not in a high state of cultivation. Spring grain I usually get in about the first of May. Potatoes I plant early in April; plow the poorest piece of sward land on the farm that I can spare, and manure at the rate of twenty-five loads to the acre, and in this way I always get a crop; but find the Mercers fail as a usual thing when planted upon old or rich lands. Seed at the rate of eight bushels to the acre.

Mode of making and saving manure and usual amount made. My barns for stabling cattle, are built with cellars under the stables for the manure, and by having turf and old hay the urine is all absorbed and remains underneath until spring, at which time it is forked over and remains until needed for the crops, when it is carted to the fields, dropped in heaps, spread and plowed in without exposure to the sun more than possible. I cart to my yards about 75 loads of turf, old hay, &c., and cart from the yards in the spring about 350 loads of manure.

Mode of fattening pork. Hogs shut up about middle of September, and commenced upon the refuse corn; fed with meal, swill and corn, about equal parts, three times a day, until about middle of November, or the small corn is fed out; after which, they are fed upon meal-swill three times daily, until about two weeks prior to killing, then changed upon corn entirely, which is thought to harden up the pork. Kill about Christmas always, and calculate the last part of the time pays as well as any; after which it is usually too cold for hogs to fat well.

Improvements. I have built me a dwelling, several barns, wagon-house, tool-house, hog-house, ice-house, corn-house, well, cistern, sink-pool, tenant-house and building attached; thousands of rods of wall at an expense of from $1 to $20 per rod; have brought up an old worn out farm capable nine years ago of keeping only four head of cattle, to a state where it will keep twelve or fifteen times that number; reclaimed a salt-marsh, that a few years since was worthless, to a fine fresh meadow, at an expense of $1,500; in fact have invested $15,000 in buildings and improvements, where the cost nine years since was estimated at $1,500.

The improvements the past year consist in erecting 45 rods of wall, at $2.50 per rod; bogging five acres reclaimed meadow, at $5 per acre; carting off 500 rods of ditch-bank, and filling into holes, and leveling off the meadow, at 10 cents per rod; making 40 rods of underdraining, at $1 per rod; cleared six acres of land of the rock,

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ready for plowing next spring; and put down ten acres of stock ground to mowing.

Mode and cost of reclaiming swamp land. The piece entered contains a large tract of reclaimed salt-marsh, or swamp which was of little or no account until I commenced its reclamation, it being covered twice each day by the tide-water. The first thing done was to build a permanent dyke with flume, in which were tide-gates to shut off the tide, and at low-water to let off the waste water from above. The dyke was made by driving into the mud five feet deep two inch plank, and trimming them top and bottom to stringer and mud sills, each 15 inches through; after this battening the plank with inch boards; then a 12 foot wall above and below the planking, and filled in with loam; width sufficient to drive cart and oxen across; a four foot ditch cut around the entire length, about a mile; a centre ditch through, and cross ditches a foot wide, sufficient distance apart to give it a thorough draining; about fifteen acres in a good reclaimed state, which cuts thirty tons of hay, equal or nearly so to my upland mowing.

Mode, amount, and cost of underdraining. My mode of underdraining is to dig a ditch about four feet deep, and the same width at the bottom, then lay down a drain in the center about ten or twelve inches wide; cover with flat stones, and fill in at the sides; after which tip in load after load, until within about twelve inches of the top, then cover lightly with old hay, and grade off the bank with ox-shovel. Cost, about $1 per rod. Situated as I am, I can dispose of my small stones as cheap this way as to cart off to a waste place and tip. Best crops grow over and near the drains.

Mode and cost of reclaiming rocky lands. The piece I entered contains two acres, and in its original state was too rocky and rough for any kind of cultivation; rich soil naturally, but covered with rocks and brush. Some six years ago I commenced to improve and reclaim it, and have but just got the lot laid down to grass. The rocks were mostly of large size, too large to be removed without blasting. I took from the lot stone enough to build a wall four feet wide at top, and five feet high, also for an underdrain the entire length of the lot five feet deep and four feet wide, besides the entire basement of a forty foot barn. I have raised two crops of corn which yielded sixty-five to seventy bushels to the acre; oats, sixty bushels; barley, thirty bushels. I have manured well each year since I commenced the cultivation and improvement of the lot; and the first year a dressing of 200 bushels of ashes to the acre. It is in a state of improvement

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now that will stand cropping eight years without any thing further done to the lot.

THE FARM OF ELISHA DICKERMAN.

Lies about a mile out of New Haven in the town of Orange. It consists of about 44 acres, partly bottom land and partly a very light sand loam. While none of the land could properly be called a sand barren, it was all very poor originally. A wonderful change has been wrought within a few years, and Mr. Dickerman deserves great credit for making such a barren solitary region glad with luxuriant meadows and blooming grain fields.

Statement of Elisha Dickerman, Orange.

My farm has 44 acres, 24 acres of which is a sandy loamy soil. I have owned it 15 years; have been improving it for 12 years. There are 14 acres of wood-land; 8¼ of pasture; 12 years ago 24 acres were sand plain; 8 acres of low meadow, yielding from 10 to 16 tons besides pasture; 4 acres upland meadow, yielding about 8 tons of hay; this year 3 acres Indian corn, yield 177 bushels; 5 acres rye gave 75 bushels; 1¾ acres potatoes, yielding 230 bushels. I have three cows—3, 4 and 6 years old; 2 horses; and fatten 2 hogs every year, the two weighing when killed from 6 to 7 hundred. I make sufficient butter for family use; balance of butter and milk is sold in the city. I sell $50 of poultry and eggs; of turnips, from $10 to $15. Value of house, $1800; barn and other buildings, $700. I have a large cistern under the barn, and my stock get water from West river which on the east separates us from New Haven. Water for house from well 45 feet deep, and a large cistern. I employ one man about 9 months of the year, at $1 per day; and other help, amounting in all to about $300.

Mode of rotation and culture. Generally plow deep, as the land is free from stones and roots. First run through a cultivator, then hoe as soon as the crop is sufficiently up; then hoe and cultivate about 3 times. Distance of corn, 4 feet one way, 3 the other. Distance of potatoes, rows 3½ feet—hills, 18 inches apart. For manure, a compost of night-soil, muck, and stable-manure.

Mode of making and saving manure, and usual annual amount made. A layer of coarse stable-manure of 120 feet by 12 feet, then a layer of muck about 10 inches on top; then about 30 loads night-soil; then mix barn-yard and pen-manure with the above before

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planting; it is again pitched over twice. The cost of manure and night-soil does not exceed $30.

Improvements. The upland, before I commenced improving it was prized at $15 per acre.

Mode and cost of reclaiming sand barren or waste. By improving from 2 to 3 acres per year.

THE FARM OF STEVEN HOYT & SONS.

We consider it a privilege to have had the opportunity to visit a farm where so much labor is expended, and where it is so well rewarded. If we have any desponding cultivators among us, we advise them to take a trip to New Canaan, and refresh themselves with the first principles of the art. The visit could not fail to be pleasant, and profitable.

This farm consists of 230 acres, a size still very common in our State, and none too large if it have the requisite capital and labor expended upon it to make it pay, About 35 acres of it are improved as a nursery; the rest is devoted to farm crops. The farm is managed by Mr. Hoyt and his two sons; all devoting themselves personally to the business. One son has the supervision of the nursery work, the other of the farm labor. They employ upon the farm twelve hands besides themselves, and arrange their work so as to keep them all busy during the whole year. This feature in their arrangements is an exceedingly desirable one for both parties. It is a great disadvantage to a man dependent upon his labor for a livelihood to be out of work for three months in the year. It may not be quite so profitable for the employer as his summer labor, yet with a little calculation, the farmer can make winter work pay very well. The amount of labor employed by these gentlemen upon a farm of 230 acres, would be deemed extravagant by most of our farmers, and yet we have no doubt that it pays much better than any smaller amount would. They have working force enough to do every thing in the nursery and upon the farm at the right time and in the best manner. Supervising the labor in person, and working with their own hands, they see that every man does his work thoroughly and earns his money. A dull laborer working with one who is quick in his movements, soon acquires his facility, and improves in the quality and quantity of his work.

The nursery of course takes the lead in the establishment, both in the labor bestowed upon it and in the amount of sales. A large space is devoted to peach trees. Ornamental trees, especially the

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evergreens have also a good deal of room. The Norway spruces and firs are very well grown, and have manifestly a congenial soil and climate. These trees are disposed of not only by sales at the nursery and by orders, but by traveling agents, a system which they think necessary to dispose of their very large stock. The amount of sales from the nursery are not far from $7000 a year.

The root crops occupy a conspicuous place in the routine upon this farm. They have an acre of onions, an half-acre of parsnips, an acre of beets, an acre and a quarter of carrots, an acre and a half of turnips, and three acres of potatoes. The best of these roots are marketed; it being considered more profitable to sell at the market prices that have prevailed for a few years past, than to feed them out to cattle. When turnips bring fifty cents a bushel, and parsnips and beets seventy-five, it is better to sell than to feed. They also raise three-quarters of an acre of cabbages, and some other vegetables for market. A very large part of our farmers are so situated that they could cultivate an acre or two of these roots to great advantage. They will pay for feed, and if there be a brisk market for them within an hour's ride of the farm, they will pay still better. More manure, deeper plowing, and underdraining, will give great root crops.

The corn crop occupies seventeen acres, and will yield not less than fifty bushels to the acre. It was remarkably even in its growth throughout, showing deep plowing, high manuring, and thorough tillage. This crop is mainly fed out upon the farm.

They have about forty acres in meadow, cutting fifty or sixty tons of hay; ten acres in oats, yielding about five hundred bushels; four and an half acres of rye, averaging thirty bushels to the acre. This is a very large yield for this grain, and shows the value of the fish compost which was spread upon the land and plowed in for this crop. They put on about twenty-five loads of the compost, and thirty-eight thousand of the fish. The straw is used for packing the nursery trees. Millet is grown in drills for feeding horses. They have formed a high opinion of its value, as an article for soiling.

The Messrs. Hoyt have about eight hundred apple-trees set out permanently in orchards, showing that they have full faith in the doctrines they preach to others, as nursery men. They purpose to plant more trees still, as soon as the ground is prepared to receive them. One orchard near the house has been planted nine years, and has been kept under constant cultivation. The trees are admirably

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trimmed from their first year, forming broad low heads. The bark is smooth, showing good culture and the use of potash water. They are examined twice a year about the collar, for the apple-worm. They are much larger than many apple-trees of three times their age, and are beginning to bear abundantly. They will have apples to sell this year. A part of the orchards are set out upon the double row system, every other tree to be removed as soon as their tops cover all the ground. They have cultivated between the young apple-trees, nursery trees, root crops, and sometimes buckwheat.

Under draining forms the most expensive and the most profitable part of their improvements. They were first led into this operation by the loss of a large number of their nursery trees upon a wet piece of land. Most of the farm has a tenacious subsoil, and a good deal of it is springy. They put a mile of underdrains in this field, and it has wrought such an entire change in the soil, and so effectually guarded against winter killing, that they are laying them down all over the farm where they are needed, as fast as they get the time and the capital. They use stone altogether, which have thus far worked well, though they have not been down long enough to determine whether they are equal to the tile drain.

Clearing rocky lands is usually carried on at the same time with the underdraining. The larger rocks are blasted, and put into heavy stone wall for fencing, making the fields of large size. The smaller ones, so many of them as are needed, are used for filling in the drains. All the stones are removed that are large enough to interfere with cultivation. The land is plowed a little deeper every time it is taken up for cultivation. The expense of clearing land in this way is of course considerable, and would be thought entirely reckless husbandry by a man accustomed to lay out only ten dollars upon an acre of soil to fit it for a crop. It costs from forty to fifty dollars an acre to do this work, and it pays much better than the old style of farming. The surface is made smooth so that a team can plow all day without hitting a fast stone. The soil is made of looser and finer texture, so that a team can plow more in a day, and the roots of plants can do their plowing with the greatest facility; there is no impervious hard pan within six inches of the surface to obstruct their range. The fine tilth which comes of draining and subsoiling, facilitates the formation of fine fibrous roots in plants and trees, so that they grow more rapidly, and sooner reach maturity. The soil is in condition to plant earlier in spring, and the frosts are kept off later in the fall. Through

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the whole season it is in much better condition for vegetation. Of course, if there were no manure applied to it, the crops would be much larger than upon uncleaned land.

But one of the greatest advantages, is in the enlarged capacity of the soil to make a profitable use of large quantities of manure. Manure upon a thin hard soil is liable to be lost by evaporation. But you may put on fifty loads to the acre upon drained and subsoiled land; the last twenty-five loads will pay as good a profit as the first twenty-five. The whole texture of the soil, to the depth to which it is plowed, will be improved. The particles of the soil will be made finer, and the whole will be made to contribute food for plants. Here are lands not worth over thirty or forty dollars an acre, made by these improvements to pay the interest on two hundred for a series of years, after they are laid down to grass.

Can there be any better illustration of the utter folly of the skinning system of farming, and the solid advantages of thorough improvements and thorough tillage. A good deal of capital has been invested in this farm, and in these improvements, and large sums are every year paid out for labor. The capital is well looked after, and it pays an interest of twelve per cent., according to the calculation of the proprietors.

The thoroughness and system apparent in all the details of the management of this farm lead us to dwell with more minuteness upon it.

Muck is highly appreciated, and may well be called the key to all their improvements. Without this, the manures could not be turned to so good account, and the drained fields would not yield so large crops. The muck bed is badly situated, and if it can be wrought with profit we are confident that there is hardly a farm in the State but would find the use of this article more profitable. It lies nearly a mile from the house, and at the foot of a long, steep hill. The labor of drawing this muck to the fields where it is to be used is immense. There are multitudes of farms in the State where it can be furnished at half the cost. The muck from this bed has a large per cent. of vegetable matter with a small portion of clay, and a very little silicious matter. It is principally dug in the winter, though a quantity is kept thrown out, so that it is always on hand, as an unfinished job. The swamp has been drained, though not entirely freed from water. After the frozen crust is removed, a pit of ten or twelve feet square is easily excavated to the depth of five or six feet. The

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water in so small a pit is easily removed with a pail, so that it does not very much hinder the throwing out of the muck.

About fourteen hundred loads are drawn out, and used every year. It is used in a variety of ways, in the yards, composted with stable manure and with fish. The result is highly satisfactory, and we think no man can visit this farm, and see the luxuriant crops without admitting that muck deserves the high reputation it enjoys here. It is fast changing poor, worn-out fields into luxuriant meadows, that will cut two and a half and three tons of hay to the acre. It may be asked, why is it then that farmers, who have muck swamps in the midst of their farms, where it can be dug and drawn for a shilling a load, never use it. The sum total of all that they put into their yards and styes is hardly a hundred loads, and two hundred loads of manure in the Spring are thought to be rather high feeding for their crops. This dirt is picked up at the roadside, or from old pastures.

Some do not use muck because their fathers are reported to have tried it, and failed to reap any advantage from it. Others profess to have tried it for themselves, and think such poor, sour stuff can not be of much advantage to the crops. They perhaps took it fresh dug from the swamp, and spread it upon a mowing field. The grass was rather poorer the first season after, and that experiment has sealed the fate of muck in their practice. But every one who is at all acquainted with the proper treatment of the article, knows that this experiment determines nothing, except that it contains an acid unfriendly to vegetation. Composting with manure or with any alkaline substance will correct this acid, and will make the whole mass a valuable fertilizer. The frosts, if it be spread out thin, where it can be frozen and thawed during the winter, will perform the same office. As soon as a man learns how to treat muck, he becomes a large consumer of the article, and it spreads itself over an increasing breadth of his farm every year. It indeed makes a good deal of labor, but it is found to pay as well as any other upon the farm. As most of us are situated in Connecticut, we are persuaded that muck can be more extensively used to advantage.

Fish for manure have recently been introduced upon this farm, and give great satisfaction. In this also, Mr. Hoyt labors under a disadvantage, as they have to be drawn five or six miles from the shore. The bony fish are taken in seines in large quantities all along our coast, and form the cheapest source of manure to all farmers near tide water. They are now caught in the midst of the bays and rivers, at a distance from the shore, and taken immediately into the boats, a

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method of capture that very much diminishes the expense of fishing, and saves many shoals that would otherwise be lost. The practice of pressing out the oil from them, and using the refuse for manure, is on the increase. Two factories for this purpose have been put in operation near Stonington this season. The oil is principally carbonaceous matter, and is not so valuable for manure as the flesh and bones which are left. The oil is worth fifty cents or more a gallon, and is used to some extent in painting. The refuse is sold from twenty-five to thirty-seven cents a thousand.

But far the larger part of these fish are applied directly to the land, and either lie and waste upon the surface, or are plowed in. Mr. Hoyt is too good a farmer to waste any of this fertilizer. They are drawn immediately to the field where they are to be used, and there a large heap of muck has anticipated their arrival. A layer of muck, a foot thick or more, is covered with fish, then a second layer of muck follows, and so on, until the heap is finished. The rule is a thousand fish to a cord of muck, though the exact proportions is matter of little consequence. There should be muck enough to save all the ammonia that escapes from the fish, as they decompose. Last year they used ninety thousand fish, and their value as a fertilizer was so apparent that they have this year used two hundred and twenty thousand. This would make over fifty loads of two tons each, to be carted five miles or more. The cost of the fish at the shore is one dollar a thousand. Further east they can be had for eighty cents a thousand. The compost is either spread upon the ground, and plowed in, in the Fall, or lies till Spring, and is then plowed in. It is found to be a quick and powerful manure for all farm crops. It is especially adapted to rye, and all other grain crops.

Then it may be asked, why are not fish more generally used, and why do some, who once used them, abandon the practice? It is mainly owing to the fact that farmers do not use them in the right way. Many do not compost at all with muck, and do not plow in green crops. Many use little stable manure, and rely almost entirely upon fish. After a few years cropping in this way, the carbonaceous matter of the soil is exhausted. The crops can find nothing to make their stalk and roots out of, and the fish is said to have lost its effect upon the land. The soil must be kept in balance, if we would reap the full benefit of fish, or any other concentrated fertilizer. If a farmer near the shore will pay attention to this, and use muck liberally with fish, he will find it the cheapest and best manure he can purchase.

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The odor of the fish is often regarded as an objection to their use. But this is entirely unnecessary, the infallible sign of wasteful husbandry. The compost heap will save all the smell. Plowing under ten inches deep will also prove an effectual remedy.

Good roads are one of the improvements upon this farm. Of course in the cultivation of so large a farm, there must needs be a great deal of carting from the barn to the varions fields. Few farmers consider the amount of travel and carting in the performance of a year's labor, and the immense waste of the strength of a team, in rough cart paths. A farm as much needs good roads, as a township, and the farmer who would do his carting in the cheapest manner, must look well to this improvement. In carting muck a mile or more, a good road is a prime necessity, especially if it is up hill. The roads upon this farm have been worked, like the high-way, the large stones removed, so that a horse and carriage can be driven over them with safety. It costs far less to remove a stone out of a cart rut, than to drive over it a hundred times in a year. It is much cheaper to fill up a mud puddle with small stones, and put gravel on top, than to drive through it every day, often miring up to the hub, and sometimes stopping to throw off a part of your load, to enable your wearied team to get out. This subject demands early attention from our farmers.

We have already adverted to the subject of farm labor, and only refer to it again, to say, that it is here made to pay largely, because enough of it is used to do the work in season, and in the best manner. They prefer to take laborers newly arrived from Europe, rather than those who have been spoiled, by invidious treatment, under inefficient managers. A laborer from abroad comes among us, a stranger to our tools, and our methods of working. He is, perhaps, naturally slow-moulded, and not very quick to take a new idea. A great deal depends upon his having a good instructor, when he is first broken into our methods of labor. He receives nearly double for his work here, and he is stimulated to do his best. If he be put in with a smart wörker, whose motions are quick and lively, he catches the spirit of the new country, and keeps up his row. If he be left to himself, he does things according to the old routine, when he had twenty cents a day, and lived on oat meal and potatoes. All the labor that a farm needs to develop its resources, and to raise maximum crops, can be made to pay, if a man will see to its management himself. Make them keep stroke and the day's work will come out all right.

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Water is brought to the barn and house from the bottom of a hill, about eighty feet below the tank into which it is delivered. A simple hydraulic ram does this work, costing, with the pipe, about one hundred and forty dollars. The power is a small stream, furnished by a spring. It is seldom out of repair, and furnishes water as constantly as a natural spring, just where it is wanted.

We need hardly say that these gentlemen are liberal patrons of the agricultural press, taking a large number of the best journals, devoted to farming and horticulture, and profiting by their suggestions. These papers are among their best investments, and have led to many of their improvements. The man who makes his farming pay twelve per cent. must work with his brain as well as with his hands.

Statement of Stephen Hoyt & Sons.

There are 230 acres in our farm, mostly a sandy loam. We have owned it 20 years; it is divided into 34 acres of swamp, or bush-pasture; 10 acres of peat-meadow; 40 acres of wood-land; 18 acres of clear-pasture; 35 acres of up-land mowing, cutting 50 tons of hay; 17 acres of Indian corn are cultivated; 5 acres of rye, 30 bushels per acre; 12 of oats, 45 bushels per acre; 6½ of buckwheat, 20 bushels per acre; 6 acres of wheat, 10 bushels per acre; 3 acres of potatoes, 75 bushels per acre; 1 acre of onions, 500 bushels; ½ acre parsnips, 800 bushels per acre; 1 acre beets, 600 bushels per acre; 1 acre carrots, 800 bushels; 1½ acres ruta baga, 500 bushels per acre; ½ acre cabbages, 2,000 heads; 35 acres in nursery cutivation; 1 acre, bearing orchard, 30 barrels; 10 acres young orchard, from 4 to 8 years old. We have 8 cows over 3 years old; 2 heifers; 4 calves, all native breed; 6 oxen, over 3 years; 1 pair fat oxen, live weight 4,000 lbs.—sold for $210; sold 5 veal calves, 4 weeks old, for $9 each; 5 horses, and 1 one year old colt; 10 swine, 14 months old; 1 breeding sow and 10 pigs—breed, native cross with Suffolk; average weight estimated 350 lbs. each—put up for family stores and to sell to workmen. Our grain is principally consumed on the farm. Cheese and butter are not articles that we calculate on for money crops, to much extent; our large family consume a large portion and we supply a number of our workmen who have families, with milk and butter. Value of buildings, $4,500. Water for stock in yard, by hydraulic ram; for house, by well and cistern. We employ 8 men by the year, pay $150 and board; six by the month, wages $10 per month and board; for month of April, 4 men by the day. We use 1 ton guano, 1 ton plaster, 12 barrels

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Lodi Co's poudrette, 25 bushels ground bones, two hundred and twenty-five thousand white fish. The wire tooth wheel horse rake is in use on our place; and Minor & Horton's patent, Peekskill, New York, and Rich's iron beam, and Prouty & Mear's, Michigan, Ruggles, Nourse & Mason's sub soil plows.

Rotation and Culture of Crops. When our grass lands begin to decrease in yield, we plant with corn, applying at least 30 loads of yard manure to the acre, made the winter previous. Plow early in May, seven or eight inches deep, turning the manure under; roll and harrow until the ground is well pulverized; plant three and a half feet apart, dropping about half a pint of compost to each hill, usually prepared from night soil. As soon as the corn is up so that we can see the rows, run the cultivator both ways; have a man follow the last time and see that the corn stands fair; run the cultivator through once in four or five days as long as the corn will admit, or at least until the ground is well tilled. In this manner of treatment there will be very little use for the hoe, as we raise no hill. Oats or root crops follow corn. If oats, plow twice; put on 3 bushels seed and harrow in. Wheat or rye follow oats; plow as soon as possible after the oats are off. Early in September apply about 20 loads of compost to the acre, usually made of yard manure and swamp muck, or ashes, or lime, or white fish and muck. If ashes, lime or fish, 1 part to about 10 or 12 of muck; plow the manure in 5 or 6 inches deep. If wheat, 2 bushels of seed. If rye, 1½ bushels to the acre; harrow in with 10 quarts Timothy seed; early in Spring, 10 pounds of clover seed. We have this Fall put our Winter grain in with Brown's patent grain drill, sowing the grain, grass seed, (and fertilizers if wished) all at one operation. We think very favorably of it, being a saving of labor and seed, and doing the work very perfect. We usually plant potatoes on corn stubble; plant early in May, rows 2 to 2½ feet apart; from 8 to 12 bushels seed to the acre; varieties, Mercer and Carter; have been much injured by the rot for the last 2 years. Onions usually follow onions, or old ground cultivated with some hoed crop the year previous, (and be sure that no weeds have been allowed to seed on the ground); manure heavily; plow in manure deep, June 6; roll and harrow and rake; plant 4 pounds of seed to the acre, in drills 12 inches apart; hoe often; plant as early as the ground can be prepared. Carrots we usually plant about the 1st of June; believe that they are less liable to blight than early sowed—on ground cultivated with some hoed crop the year previous; manure heavily with fine manure or compost; plow deep and sub-soil; 2 pounds of

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seed to the acre, in drills 16 inches apart—this to 6 and 8 inches in drills.

Mode of making and saving Manure and usual annual amount made. We keep all our cattle in barn-yards and stables through the usual foddering season, and the cows at night through the usual pasturing season; commence about the 1st of August to feed cows with green corn, night and morning, in yards and stalls; after corn fails, usually have refuse cabbage, beet, carrot and turnip tops, until winter; keep working horses in stable the year round; keep hogs in yards. After cleaning out our cattle and hog-yards in the Fall, bed them 6 or 8 inches deep with muck, leaves and waste litter, and have a store of dry muck near by to put in stables, with bedding all cleaned out together and spread over the yards. Coat the yard during winter with a layer of muck 2 or 3 inches deep, as often as we think necessary. Early in Spring, usually in March, this mass in the yard is forked over and piled either in the yard or carted to a field where it is to be used, and to be piled up to be used for corn, potatoes, carrots, turnips, cabbages, &c., &c. Our cattle and hog-yards are kept well supplied with muck and litter during Summer. Horse stables are filled under the floor with muck, which hold about 15 loads, and this is turned 2 or 3 times during the season to get it well saturated; take out Spring and Fall; get about 30 loads. Have about 500 loads of manure in Spring and 250 in Fall, from all our yards. Mow our swamps and swales and collect leaves from the woods for litter for yards and stables. Have averaged to draw 1,200 loads per year, of swamp muck, for the last 3 years—about two-thirds ox-team loads; cart in Winter mostly, and endeavor to have 1 year's stock ahead; use what we can in cattle and hog-yards, stables, privies, sinks, &c. &c., and the balance compost with ashes, lime, guano and fish. Have composted about 220,000 fish this year; about 10 or 12 parts muck to 1 of fish. These composts are used for Winter grain in Fall, and root crop and nursery culture in Spring. Believe the most profitable way to use muck is in the cattle and hog-yards, stables, privies, sinks, &c. &c., and to use none until it has been frozen and exposed for one season at least.

Mode of Fattening Pork. As to fattening pork, presume we are behind the times. We have not paid so much attention to this branch of farming as it deserves. One object in keeping a large stock of hogs is the making of manure, which we consider a large item. We usually Winter August pigs to fatten the next October and November. Winter on sugar beets, parsnips and refuse apples and slops from the

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kitchen, and balance, if necessary, corn; in Summer, milk and slops from kitchen, with the bran from the wheat and rye that is consumed in family, and kept well supplied with green litter, such as weeds, clover, &c. If not enough to keep in good condition, balance corn. Usually feed 6 to 8 weeks on corn without cooking.

Improvements. Since we have been in possession of the farm, we have repaired the house and barns, built a tenant house 24 by 18 feet, 3 sheds for stabling and storage of implements and forage, viz: one 60 feet by 25—12 feet posts; one 60 by 20—14 feet posts; one 40 by 20—14 feet posts; 1 building, 24 by 42 feet, 14 feet posts, for shop, carriage and tool-house. Taken the rocks and stones from over 100 acres, built 1500 rods of stone wall, made 1100 rods of underdrains; have worked and turnpiked over 1 mile of road on the farm; have sub-soiled 25 acres; transplanted 1300 apple trees for orchard purposes; 100 pear trees and 400 quince trees; 500 peach trees; besides cherry and plum trees for family use, and the smaller fruits, such as grape, raspberry, blackberry, &c. Have brought water into our yards by a hydraulic ram—distance 50 rods—elevation 80 feet. The above are the principal improvements, which have mostly been made within the last eight years. The improvements for the present year have been 350 rods of under drain, in a field of 8 acres, (made December, 1856, and March, 1857, and now, December, 1857, are making underdrains.) Have reclaimed an old pasture of about 6 acres, that was rocky, and a large portion of it wet, and some part bogs; made fifty rods of wall from the stone on the piece, 8 feet bottom and 6 feet top, and about 100 rods of underdrain, and has all been plowed, and now shows a dry and even surface—cost, $200. Also another piece of 4 acres, which had a small stream of water running through it, which made a swale of 4 or five rods, too wet to plow; we have dug the ditch 4 feet deep, and made a trunk of stone about 10 by 12 inches, 30 rods in length; it is now dry and sown to rye, and the rye looks better than any other part of the lot. We have transplanted 520 apple trees for an orchard.

Mode and cost of reclaiming Swamp Land. We have not had much experience in reclaiming swamp lands. The swamp that we own the former owner reclaimed, but did not do it thoroughly, and it did not answer his expectations, and he sold it. When it came into our possession all we had to do was to settle the outlet, and cut deeper drains around by the up-land, and make more through the center. It had been plowed, but was so wet that it did not

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produce much. We have had corn on it 2 years, and oats 1, and it is now down to grass and appears promising.

Mode, amount and cost of Underdraining. Our principal experience in underdraining has been on ridge land that has long been cultivated with ordinary farm crops, and in most instances produced tolerably well; but is moist land, and we find by experience that underdraining improves it far more than the cost. We run the drains up and down the slope, varying in distance apart according to dampness of soil. Our drains are from 30 to 60 feet distance, averaging about 40 feet, and 3½ to 4 feet deep. We use a team and plow to commence our drains; plow 2 furrows and throw out with shovel; plow two more with common plow, then use sub-soil plow; put a yoke 12 or 14 feet long on oxen, (2 pair if hard) so that they can travel on each side of the ditch; plow twice with sub-soil plow, and clear out with shovels; this will usually make a ditch 2 to 2½ feet deep; the remainder is done with picks and shovels. We trunk no drains except the main or outlet, that are to receive the water from a number of smaller drains. Our common drains, that are 3½ to 4 feet deep, are from 10 to 12 inches wide on the bottom; fill with small apple-seed-shaped stones; place them carefully, small end down, and wedge in closely and fill over with small stones; if not small, break them up fine with a sledge hammer; fill up with stones 18 inches; do not have the stones nearer the surface than 2 feet; cover the stones with sods, or shavings, or some kind of mulch. The cost of such drains is about 40 cents per rod. This is on our most favorable lands for draining. We have built many rods where it has cost us double that sum.

THE FARM OF GEORGE OSBORNE,

Lies near the summit of the ridge, and not far from the Episcopal church. The speciality to which Mr. Osborne devotes his farm, is the grazing of cattle for market. Around this business all his farming clusters, and every thing is arranged to make this successful. The feeding of cattle in the fall and winter, furnishes him with large quantities of manure, and his farm has rapidly improved under his management for the past few years. He has attempted underdraining on a small scale, with marked success. He has also cleared some fields of rocks, and raised excellent crops of grain. His business of buying and selling cattle takes him away from home a good deal, and this is a great disadvantage to his farming.

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We saw several pieces of King Philip corn in this region, and learned that it gave general satisfaction. It is out of the way of the frost very early, and the yield is large for the quality of the land and the manure put upon it. We think this part of Fairfield County is more backward in agricultural improvements than any part of the State we have yet visited. Even that readiest means of enlarging the manure heap and enriching the soil—the muck swamp—is very little used. There is an abundance of the article on most of the farms, or in the immediate vicinity.

They have been hitherto at a distance from agricultural fairs, and we presume are not very liberal patrons of agricultural papers. We found the idea prevalent here, that the State Agricultural Society is a money making institution, and that a farmer might as soon think of helping along the United States Government as of lending a little gratuitous aid to the Society, or to one of its committees. This idea struck us as a little behind the times, but we trust the day is not distant when the design and objects of this Society will be better appreciated in this part of the State.

Statement of George Osborne, Redding Ridge.

He has 85 acres on his farm, a black loam, with hard-pan under. He has owned it twenty years. Six acres are in wood land; 24 acres in clear pasture; 35 acres are mowed, giving seventy-five loads of hay; 5 acres Indian corn; 7 acres rye, 105 shocks; 6 acres oats, 50 bushels per acre; 1 acre wheat, 12 shocks; 1 acre potatoes, 8 bushels; turnips, 100 bushels; 50 trees in orchard. His stock consists of 3 cows, Durham cross and Native; 1 heifer; 4 oxen, over 3 years old; 2 pair steers, 2 years old; 3 steer calves; 1 Durham bull, six months old. Fourteen fat oxen, average weight 900 pounds—12,600 at 8 cents, $1008; 10 steers, 3 years old, average 650 pounds—6,500 at 8 cents, $520; 10 cows and heifers, average 550 pounds—5,500 at 7 cents, $385; 3 two year old steers, 1600 pounds, at 6½ cents, $104; total 26,200 pounds of beef, $2,017. The above stock mostly wintered on my own place, and summered at home and on hired pastures by the year at $130 for 60 acres. Two ponies; 5 Suffolk cross pigs, $30. Grain all fed on farm. Sold 300 pounds of butter. I winter 30 hens, and sold 200 dozen eggs at 16 cents, $32. Chickens mostly used in family, say 80 raised, 20 sold at 40 cents, $8. Value of buildings, $2000. Wells in barn-yards supply water for stock; for the house, a well, water drawn with Douglas' pump in the kitchen. One man from $120 to $150 wages, is hired by the year. The av-

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erage of labor by the day is one man for eight months. Have used some guano, do not think it pays. I use a wheel wire-tooth horse-rake, and seven different sorts of plows.

Rotation of crops, culture, &c. For raising corn, plow sward or meadow seven inches deep; 40 loads of barn-yard manure per acre are turned under; drag well; mark 3½ feet each way; hoe three times; have raised 537 bushels of ears on three acres; follow with oats; plow fine twice; drag well; sow from four to six bushels seed per acre, five is just right; sow twelve quarts of timothy, and four quarts of clover per acre; mow from five to seven years, then plow. Twenty-five acres of my farm was bought twenty years ago, at $30 per acre; taxed two years past at $50. The assessors are this year calling it $100 per acre. When bought I could not cut seven tons of hay; I can now cut one hundred or more, and raise grain enough for family use.

Mode of making and saving manure, and usual annual amount made. In fall draw turf and wash off road, all I can gather, say 40 or 50 loads, in my yards; collect of neighbors all the coarse grass I can, and stack for bedding stable, and bed all the stock I can. My yards are dishing, so that nothing escapes; make about 200 cart loads per year.

Mode of fattening pork. Give milk and slops of the house through the summer, with small quantity of grain; feed soft corn to start them; top off with meal.

Improvements. Put up my buildings; and fenced with stone-wall the entire farm; also made from 400 to 500 rods of drains. Reclaimed one acre by taking off stone, draining, and fencing; sowed to grass in August; looks well.

Cost of underdraining. Seventy-five cents per rod.

THE FARM OF B. H. ANDREWS,

Lies some two miles west of the city, and is under good cultivation. It is upon a hill, and all the wet parts of it admit of easy drainage. The work of clearing off boulders and making the meadows perfectly smooth has been begun, and is found to pay well. Mr. Andrews devotes a good deal of attention to improved stock—particularly the Devons—and horses. A yearling bull and heifer took premiums at the State fair last year. He has several others coming on, that promise to excel the older stock. A pair of grade Devon cattle do the ordinary farm-work. They are equal to any thing we have ever met with in our farm visits.

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Mr. Andrews, like most of our farmers, does not like the bother of much labor. He works himself habitually, and does not half develop the resources of his farm, for want of more capital and labor. With these, wisely directed, its products might be increased four fold, with the greatest ease. There is nothing, perhaps, that lies so much in the way of the improvement of our farms as this aversion to employ more help. Some do not believe it will pay. But multitudes, who have no doubt on that score, do not like to have the trouble of boarding laborers in their families, and they are not yet furnished with tenant houses, so that laborers can board themselves. They are getting on comfortably as they are, with one man and boy; and they do not like the care of directing the labors of half a dozen, even if they can be made more profitable. This is the position of three-fourths of the farmers of the State. They have profitable employment for four times the number of laborers they now employ.

Statement of B. H. Andrews, Waterbury.

I have owned 75 acres of land—occupied 12 acres more—for 13 years. A hill farm. The soil is a dark loam, with hard-pan subsoil. It is divided as follows, viz.: 3 acres of swamp or bush pasture; 7 acres of wood-land; 48 acres of pasture; ¾ of an acre of low meadow, which cuts one ton of hay; 22 acres of upland mowing, cuts 40 tons—sold $24 worth standing; 1 acre of Indian corn; 3 acres of oats, not thrashed; 1 acre of buckwheat, yielding poorly; ¾ acre, not thrashed, but decidedly good spring wheat; ¾ acre poor yield of potatoes; turnips 80 bushels grown on ¼ an acre; 75 bushels apples. My stock consists of 3 Devon cows, three years old and over; 3 Devon heifers, and 1 grade Devon; 4 Devon calves, and 1 grade sold for $10; two oxen; 1 steer under three years old; 1 two year old, 3 yearlings, and 1 calf—bulls, Devon; 2 beef cattle weighing 2200 pounds, sold for $174; 3 horses; 4 swine—two Suffolk, one year old, one spring pig, one fall pig, common. Have no account of butter made—value of what sold was 22 to 25 cents per pound. Have sold quite an amount of eggs, but have no account. Value of buildings, $1000. A chain pump and well at barn-yard; springs on other parts of the farm supply stock with water. At the house, well, bucket drawn on drum. I hire one man for 7 months, at $11 per month, and 6 days at $1.25. I use Bronson's plow.

Rotation and culture of crops. Take turf land for corn; 30 cart loads of compost and barn-yard manure to the acre; spread the manure on the turf; then ridge, by turning two furrows together, very

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narrow belts; plant 2½ feet apart on the ridge; 3 corns in the hill; hoe twice without breaking the ridge. Strike the ridges east and west or north and south, according to the make of the land; not feeling it important, as some writers claim, to strike the ridges north and south, that the sun may have a chance to shine between them "lengthwise," as they seem to forget that the sun shines twice a day lengthwise of east and west rows, while it shines but once a day lengthwise of those running north and south. Where the land is too wet, and has not been underdrained, strike the ridges up and down the hill. Where the land is dry, begin on the upper side to strike. Roll the corn in plaister, and apply ashes or plaister to the hill after first hoeing. Plow from four to six inches, as I can succeed in keeping the plow in, in a stony soil. Follow with oats or spring wheat, and seed to grass by one-half bushels equal parts herds-grass and northern clover seeds to the acre. Buckwheat summer fallow, without manure; sow from one-half to three-fourths bushels per acre; follow with potatoes, thorough manuring; then oats and grass as above; rye, ditto; oats, sow from 2½ to 4 bushels per acre, according to the strength of the land.

Mode of making and saving manure, and usual annual amount made. Cart into my yard stuff that collects about house and wood-pile, wash from road side, and leaves from about the farm, where there are holes dug to catch it; throw the manure and wash from the stables on to it under shelter, when I can; consuming most of the products, and sometimes more than all of some kinds, in raising or fattening stock; digging and filling with absorbing materials for emptying all kinds of wash from and about the house. The annual amount varies according to the amount of stock I am able to keep.

Mode of fattening pork. Have no definite mode, as I do not often fatten for market.

Improvements. Converted 10 acres rocky, stony pasture and worn out plowed land, into meadow, yielding from 1½ to 3 tons first quality hay to the acre. Built several long and heavy strings of wall. Set young, selected, choice fruit trees, and grafted others, &c. A continuation of the same improvements within the year. Built a new house, 22 by 26 feet, two stories; kitchen, &c., apart, 16 by 22 feet, one and an half stories high.

Mode, amount, and cost of underdraining. What underdraining has been done is done with filling the ditch with stone; have no accurate account of cost, as it was done in filling up of time when not hurried with other business.

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Mode and cost of reclaiming sand barren. Have no sand on the farm; but if I had, think I might improve some parts by mixing with the present soil.

THE FARM OF SAMUEL FRENCH,

Lies nearly a mile west of Mr. Andrews' place. His business is the manufacture of brick from an excellent bed of clay laying upon the farm. As he carries the loads of brick down to the city, it is convenient to bring back manure. As the teams would otherwise come empty, he does not feel the expense of carting manure upon his farm, though it is brought over three miles upon a hilly road.

The clay bed lies in the bottom of a hollow, and it was for the purpose of draining this clay bed, that Mr. French first undertook his experiments in underdraining. The clay is of excellent quality, and is very deep. As he has little competition in the brick market, he makes about four millions annually, using up about five hundred cords of wood, and a large amount of hard coal screenings. These screenings are incorporated with the clay before it is moulded, at the rate of three pecks to the thousand. It is found by experiment that a kiln of a hundred thousand bricks will burn two days sooner for the screenings, and will save about ten cords of wood. This is a very important saving in this business.

Mr. French has two acres of underdrained land near the brick-kiln. The drains are put down about two and a half or three feet deep, and run into the many ditches upon the sides of the field. The drainage would be more perfect if the drains were three and a half or four feet deep. He estimates the yield upon this field at five tons to the acre of excellent herdsgrass.

In another part of the farm, he has cleared two acres of rocks at a cost of about fifty dollars to the acre, putting the stone into heavy walls. The yield upon this reclaimed land this year was six and a half tons to the acre. Of course it took some manure to give this enormous product of hay. When the land was in corn two years since, he put on fifty loads of stable manure to the acre. Every farmer can see at a glance that this is much more profitable farming than a ton of hay to the acre. In the latter case the hay costs all it will bring in labor. In the former case there is a large profit. The clearing of rock, costing fifty dollars, is a work done for all time, and the cost of that goes into the annual expenses as three dollars of interest money. The fifty loads of manure was more than paid for in the very large corn crop taken off when the land was

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under the plow. The original cost of the land was not over fifty dollars an acre. Mr. French then pays an interest on an acre and its improvements, of six dollars for this year. His hay crop is worth standing, at ten dollars a ton, sixty-five dollars. Deduct the six dollars, and you have fifty-nine dollars as the profit of an acre. This certainly is a much better style of husbandry than that which starves the corn, and leaves the grass to take care of itself.

THE FARM OF K. B. WHEATON,

Adjoins that of Mr. French. His occupation is that of brick making, using the intervals of time when that business is not pressing, in the improvement of his farm. He has a swamp of about four acres, which he has partially reclaimed. He has laid down stone drains under about two and a half acres, at a depth of from two to six feet. The crops this year are corn, cabbages, potatoes, and turnips. The corn was uncommonly promising until it was struck by the frost early in September. All the crops were luxuriant, and much better than could be raised upon the adjoining land. The drains are put down about thirty feet apart, and have taken off the water thoroughly. He estimates his expenses upon this piece of land at about three hundred dollars, and thinks the crops will pay the interest on thrice that sum, besides the expenses of growing them.

JOHN C. BOOTH'S RECLAIMED ROCKY LAND,

In the suburbs of the village, is one of the best samples of this kind of improvement we have ever seen. The land consists of about three acres, and was originally so rocky that a crow-bar could not be put down upon any square foot of the surface without striking a rock. There is plenty of land of the same character lying now beside it, in all its pristine beauty, bristling with rocks, alders, hardhack and brakes. As the stones upon these lots were needed for building purposes in the city, the cost of clearing the land was but a trifle. They stand him in sixty dollars. They are now well underdrained with stone, and are in pasture. The growth is luxuriant, and the rent is estimated at thirty dollars an acre.

Near the cemetery, Mr. Booth has cleared other rocky lands, and used up the stones in heavy walls and in underdrains. He finds that capital invested in this way yields very good, as well as very safe returns. Such investments never have a crisis or refuse to yield dividends.

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Statement of John C. Booth, Waterbury.

I own 45 acres of reclaimed rock, swamp, and some alluvial land. Have owned it from one to ten years. It is in detached pieces. There are 15 acres of wood-land; 2 acres pasture; the rest meadow. All but the wood-land is mowed, unless needed for other purposes. Two acres Indian corn; 6 acres oats, not thrashed; ½ acre potatoes, yield good, did not measure product. I keep 1 cow, native; and 2 horses. Water is brought in lead pipes to the barn, and yard, and to the house there is a well with a pump on kitchen sink. I keep 1 man on farm and garden. Use 25 bushels bone-dust, and 1 ton of plaister.

Rotation and culture of crops. Corn and potatoes followed by oats, and seeded for mowing with 8 quarts each timothy and clover per acre. Stable-manure for corn. Bone-dust and ashes for potatoes. Plow 6 inches deep. Hoe twice. King Philip's corn. Two by 3 feet; other kinds 3 by 3½ feet distance between hills.

Mode of making and saving Manure, and usual annual amount made. Horse and cow manure thrown from stable under cover, and mixed with washings from road and turf; worked over daily by the pig.

Improvements. Most of my land when I came in possession was rocky, bushy, wet land, and now cuts from 2½ to 3 tons per acre. One farm-barn built this autumn on land near the cemetery. House and barn in the city not included. Have expended $200 in underdraining and clearing off rocks this autumn. Since the Committee were here I have underdrained the land adjoining the cemetery ground, agreeable to their suggestions, and have nearly cleared the land of every rock and stone. Intend to complete it this month if weather is favorable.

Mode and Cost of Reclaiming Swamp Land. Underdrain by a ditch 3 feet deep and 2 feet wide, at a cost of 75 cents per rod. Two-thirds the depth of ditch filled with stone.

THE FARM OF DR. C. BULLOCK,

Lies upon a spur of Talcott mountain, as you pass over to Avon, about seven miles from Hartford. The Doctor was attracted to this spot by its healthfulness, and by cheap land, two excellencies that the region will not very soon part with. He has found time in the intervals of professional labor in the city, to clear up a few acres

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of wild land, and to lay the foundation of a beautiful home. Nature has done a good deal for the location. The picture gallery is all built, and the pictures framed and hung, and the arrangement of light and shadow is faultless, so that all critical visitors will find their "occupation gone," and have nothing to do but admire.

He has begun wisely, as we think, with the land, reserving the mansion for the future, when it will be in keeping with the lawns, the fruit and ornamental trees, which time alone can make perfect. A temporary dwelling, a sort of summer retreat, answers his purpose while he is creating the little world in which he means to live.

The farm consists of but fifty acres. The rock is trap, a good deal disintegrated, and the soil every where is full of small stones. But this thin soil must be of excellent quality, as the timber upon either side of the mountain looks thrifty and vigorous. That part of the land cleared up is sheltered from all winds by the forest, and is admirably adapted to fruit. It is laborious to clear the soil of stone after the timber is cut off, but it yields so abundantly that it pays well.

The barn is already built, and at the time of our visit early in September had the prime excellence, in all farmer's barns, of being well filled. It had even overflowed, and its superabundance was stored in a temporary shelter in the rear. He now cuts about thirty tons of good hay, which with the straw and stalks of his grain crops make an abundant supply for his stock. One feature in the barn we have rarely met with. It is an arrangement for bringing water directly to the feeding troughs of the animals so that they can drink at pleasure. It is a conceded fact, that all animals thrive better with this arrangement, especially horses. The stalls here are partially under ground, and made very warm in winter. A small trough runs in front of the feeding rack, where the water is always within reach of the horses. The water-trough is supplied by a lead pipe, leading from a living spring a few rods from the barn. The temperature of the spring, and the sheltered position of the stables guard the water against freezing in all ordinary winter weather.

Stock. The Doctor keeps but three cows and four yearlings, four horses and three colts. He has an eye for horse-flesh, as one might judge from the relative proportion of this article. The two brood mares are kept to pasture in the summer, and are not overcrowded with work or oats; a hint that will be useful to all the breeders of this noble animal.

Fruit. There must be something very congenial to the growth

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of fruit in the soil and climate of this mountain. In this year, when apples were a curiosity, and the peach crop a failure, both were abundant at the farm-houses along this road. We saw peach-trees heavily laden with their fruit, and apples, pears and plums, in their greatest perfection.

The Doctor's enterprise has run a good deal to fruit. He has planted a pear orchard of sixty-five trees, eight hundred peach-trees, and one hundred apple-trees. In the immediate vicinity of the house he has a few of each in bearing condition. We never saw finer peaches, when that fruit was in its perfection thirty years ago, than we find here. The trees look in sound, healthy condition, and the fruit was of the first quality. The plums were also excellent, and showed no marks of the curculio. Had the Doctor's friends suspected the tall clover in which he was living in the month of September, we have no doubt that the calls at his snuggery in the country would have far exceeded those at his office in the city.

If what we saw here was a fair sample of the genius of Talcott mountain for fruit growing, it is time this range of hills was appropriated to orchards. The shelter of the woods is no doubt favorable to fruit, but there must be something in the soil aside from this to account for such results. It seems equally favorable to all kinds of fruit. The strawberries and cherries in their season, we were informed, do quite as well as the plums and peaches. The cherry-trees looked very smooth and thrifty.

The farm of Mr. Nichols, of Monroe, the Committee were not able to visit all together, and the Sub-Committee, to whom this business was delegated, was unexpectedly prevented from fulfilling his duties. We owe this gentleman an apology for our failure, and hereby tender it.

Messrs. French, Wheaton and Bullock have failed to make any statements, which we exceedingly regret, as they had matters of great importance to lay before the farmers of the State.

In conclusion, the Committee would make a few suggestions to the Society, in regard to the future arrangement of the premiums for this department. We think Reclaimed Salt Marshes should have a premium distinct from those which are fresh. They are nearly all so situated that they can not be perfectly reclaimed, and should not therefore come into competition with those which can be so drained as to admit all up-land crops. Salt marshes are probably most valuable to the farmer, when kept in grass, without ever using the plow.

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We regard the improvement of these marshes as one of the most feasible and profitable enterprizes that can be undertaken.

Underdraining is beginning to attract attention, and we think should have a larger share of the funds put at the disposal of this Committee. It is undoubtedly one of the most profitable investments a farmer can make; and if three premiums instead of one were offered, it would lead to a larger number of experiments and to a livelier competition.

The Committee award the following premiums:

On Farms of 100 *Acres and upwards.*

First premium not awarded. Neither of the farms entered came quite up to the standard which the Committee regarded as a model.
Second premium to Stephen Hoyt & Sons, - - $35
Third do. Philip Scarborough, - - - 20

On Farms less than 100 *Acres and over* 40.

First premium not awarded.
Second do. to J. A. Bill, - - - - $25
Third do. Samuel Prentice, - - - - 15
We award to John C. Booth, of Waterbury, for the most successful reclamation of Rocky Lands, - - 10
In examining Swamp Lands, the Committee regarded two of the competitors as entitled to equal merit, and divided the premium, awarding to Samuel Prentice, - - $5
To B. K. Wheaton, - - - - - 5

No sample of Reclaimed Sand Barrens was offered, that appropriately came under this head.

In experiments in underdraining, the Committee regarded two of the competitors as completely successful, and divided the premium, awarding to James A. Bill, - - - - $5
To Samuel Prentice, - - - - 5

The Committee recommend a gratuity of $5 to Samuel French, of Waterbury, for Reclaimed Rocky Land. Also $5 to Dr. C. Bullock, of Hartford, for Reclaimed Rocky Land and successful farming.

All of which is respectfully submitted.

Signed, WILLIAM CLIFT.
B. SUMNER.
ELIAKIM HOUGH.

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HARTFORD

COUNTY AGRICULTURAL SOCIETY.

NOTWITHSTANDING the "hard times," the course of this Society is still onward. Otherwise than a slight diminution in its receipts, its history for the year 1857 will compare favorably with that of any preceding year. The four days on which its annual Fair was held, were pleasant, and the attendance, all things considered, was such as evinced an increasing interest in its proceedings. Many persons, who once thought it to be of doubtful utility, have come to regard it as an institution of great importance to the cause of Agriculture, and unite heartily in efforts to promote its prosperity. The total receipts of the Society for the year were $1,596.38. The exhibition of Vegetables and Fruits was excellent, and gave evidence of progress in these departments of domestic economy.

Among the Farms presented for the Society's premiums, one merits particular attention, as a good illustration of what can be accomplished on "an old worn out farm," in Connecticut, by a thorough and energetic farmer. The farm alluded to is owned by F. W. Cowles, Esq., of Manchester, contains one hundred and twenty acres, and partakes of the light, sandy quality so common to the soil of that section. When purchased by the present proprietor, some twenty years since, it had been so reduced, so absolutely sterilized, that to winter five animals, (two horses, a pair of oxen and one cow,) he found it necessary to buy hay in the month of March. Receiving the meagerest returns for his labor, year after

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year. In 1844, Mr. Cowles resolved to take hold of the old farm in good earnest; and by a system of deep plowing, high manuring, and thorough tillage, has succeeded in renovating and refertilizing the exhausted soil, insomuch that he now keeps thirty or more head of cattle, and in a very productive season sells several tons of hay. This change has been effected mainly within the ordinary course of farming, without the aid of fertilizers from abroad. Many a discouraged farmer of Connecticut, who has sold his old, worn-out farm, and, emigrating westward, invested the proceeds in the fertile lands of that region, can not show so great a profit on his investment. Certainly such examples should be well pondered by the young farmers of New England, before they decide to exile themselves from their native soil, and swell the shout, "westward, ho!"

The Hartford County Agricultural Society was organized in 1817, and with the exception of a suspension of a few years just previous to 1829, it has been actively engaged in the great cause which it was instituted to promote. Its influence has been very perceptible all along, in stimulating efforts to improvement in all the departments of husbandry. The products of the soil, the qualities of the domestic animals, and every thing, in short, pertaining to farm management, have gradually been undergoing improvements,—the standard of farming has been greatly elevated throughout the County, and all the fountains of wealth and material prosperity augmented and quickened in their flowing. Long may it be sustained with a vigorous life, and continue to diffuse over the County, greenness, fertility and thrift, until "the little hills rejoice on every side, the pastures are clothed with flocks, the vallies also are covered over with corn—they shout for joy, they also sing."

FRANCIS GILLETTE,

Corresponding Secretary.

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FAIRFIELD

COUNTY AGRICULTURAL SOCIETY.

This Society was organized in 1840, and held its first exhibition in Danbury in 1841. The four following seasons the Society divided its funds, and fairs were held in both Danbury and Bridgeport. This arrangement being attended with double the expense, and but little interest being awakened throughout the county, it was deemed advisable to unite the Society, and have but one annual exhibition.

From 1845 to 1853, the Society held its fairs in Bridgeport, with the exception of one year, when it was held in Fairfield. The exhibitions during this period were small, and but little interest was manifested outside of the immediate vicinity of the exhibition.

In 1853 the citizens of Stamford feeling much interest in the Society, subscribed upwards of eight hundred dollars for its use, providing the Society would hold its next fair in that place. It was then and is now, the practice of the Society to hold its exhibitions in the town that should raise the largest amount of money for its use proportionate to its inhabitants; and this being the largest amount subscribed, the Society voted to hold its next fair in that town. The exhibition was much larger than formerly, and a new interest was created throughout the county. The Society had, after paying all expenses, upwards of seven hundred dollars ($700) in the treasury; six hundred of which sum was applied towards procuring a tent for its use.

In 1854 Stamford again made an effort, subscribing about

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one thousand dollars, and obtained the fair; which was one of still increasing interest.

The two following exhibitions were held in Norwalk; and that the Society still continued to prosper was very apparent from the fact that its "Mammoth Tent" proved almost insufficient to accommodate the immense crowd.

Its seventeenth or last fair returned again after a lapse of twelve years, to Danbury. The exhibition although not as large as the three last preceding it, was very commendable. The weather upon the opening day being very unfavorable, many from a distance were disappointed in bringing in their articles, yet by the earnest zeal of the citizens of Danbury, the number of entries for articles exhibited in the tent was upwards of four hundred.

The display in the Vegetable and Horticultural department was for the season exceedingly fine.

The Ladies' Industrial department was largely and well sustained, giving evidence of their willingness to assist in making the exhibitions interesting.

The exhibition of stock was not large, but taken as a whole, was superior in quality to those of any previous exhibition. That there is an increasing interest growing among the farmers of this County in the improvement of stock, was make manifest by the large display of blooded stock at this exhibition.

The display of Sheep and Swine, as heretofore, was very limited.

The exhibition of Horses was very fine; and that there is a steady improvement in our breeds is very apparent.

The number of entries of stock was upward of two hundred, a list of which is given below, classed according to ages, &c., viz.:

Two trains of Oxen, one consisting of thirty-eight yoke, and the other of twenty-seven.

Thirteen pair of Working Oxen, six years old and upward.

Ten	do.	five years old.	
Six	do.	four	do.
Seven	do.	three	do.

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Six pair of two years old.
Four do. yearlings.
Three three years old Bulls.
Six two do. do.
Ten Yearling Bulls.
Twenty-one Milch Cows.
Five three years old Heifers.
Seven two do.
Ten Yearling Heifers.
Twenty-seven Calves.
Twelve Fat Cattle.
One Herd consisting of twenty-eight head.
Five Breeding Sows.
One Boar.
Six entries of Sheep.
Eight Stallions.
Thirteen Roadsters.
Four Breeding Mares.
Two pair Matched Horses.
Fourteen Farm Horses.
Two four year old Colts.
Four three do.
Four two do.
Three Yearling Colts.
Twenty entries of Fowls.

The number of Young Stock exhibited was much larger than formerly, and were mostly blooded animals. The most of herd given above, are also blooded stock.

The "Plowing Match" was a source of great interest, and the center of much attraction. The Society offered about sixty dollars in premiums for plowing, ranging from twelve to five dollars. There were eleven competitors in the field, thereby causing a considerable competition. The work was neatly executed, and general satisfaction prevailed.

The Society was addressed during its exhibition by many able and interesting speakers, among whom were the Hon. T. B. Butler, the President of the Society, Hon. Nelson L. White, A. H. Byington, and Henry S. Sanford, Esq.

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This Society has for the last five years held its exhibitions during four days. The first day (Tuesday) is devoted to receiving articles into the tent. The tent is opened to visitors in the evening, and the audience is addressed. Wednesday, at eight o'clock, the awarding committees enter upon their duties. At ten and one o'clock the tent is opened for visitors. In the afternoon of this day the schools with their teachers are admitted free, when an appropriate address is given. In the evening the farmers have a social conversational meeting, each giving his views upon topics connected with his business. Thursday is the day set apart for stock, and is the principal day of the exhibition. The tent is generally crowded, and an address is given in the afternoon and evening. Friday, the last day of the exhibition, is set apart for plowing, which comes off at ten o'clock, immediately after which the annual address is delivered, and the premiums as awarded announced. The articles are then removed, and the exhibition closes. By this arrangement ample time is given for committees to act, and things pass off more satisfactory, with much greater interest, than it would were our exhibition crowded into less time.

Our last fair was, as a whole, very creditable to the farmers of Fairfield County; in fact, was much better than could have been expected under the many embarrassments of the season.

Owing to the pressure in money matters, and the fact that the State Society was to hold its next exhibition in the County, many predicted a failure, and recommended holding the County fair in connection with the "State Society." This however did not meet the minds of the citizens of Danbury, who were earnest and steadfast in their action; and that it might not prove a failure, they subscribed two hundred dollars in addition to the four hundred already raised, for a grand "Balloon Ascension," to take place on the last day of the exhibition. By this means many more were attracted, and the receipts at the tent much increased. The amount offered by the Society in premiums was about nine hundred dollars. The total amount received by the Society

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was $1,314; seven hundred and fifteen dollars ($715) of which sum was received at the door for single admission tickets. The amount now in the hands of the treasurer is about one hundred dollars ($100.)

The annual meeting of the Society was held in Danbury, December 8th, 1857, when the following persons were chosen officers for the present year, viz :

President, Col. Thomas A. Mead, Greenwich.

Vice Presidents, B. B. Plumb, Trumbull; P. D. Crosby, Danbury; J. M. Rose, Greenwich; Henry Morehouse, Darien; Talcot Wakeman, Westport; Wm. B. Hill, Bridgeport; Judson Curtis, Monroe; Hanford Nichols, Weston; Darius Davenport, New Canaan; Alanson Lyon, Redding; Nathan Seeley, Bethel; John Hawley, Brookfield; John B. Knapp, Stamford; Samuel Seymour, Norwalk; John H. Sherwood, Fairfield; Wm. Nash, Stratford; David Lewis, Huntington; James S. Cole, Easton; Wm. Hickok, Wilton; Wm. Howe, Ridgefield; Aaron Sanford, Newtown; Gideon Beardsly, New Fairfield; George W. Graves, Sherman.

Corresponding Secretary, A. H. Byington, Norwalk.

Recording Secretary, Edwin Hoyt, New Canaan.

Treasurer, William P. Comstock, Danbury.

State Director, P. D. Crosby, Danbury.

It is the practice of this Society to elect a Vice President from each Town in the County, to whom are sent the "Premium Lists," and all other documents of the Society, for distribution in their respective towns.

The great "wheel" of agriculture in this County is now moving forward, carrying with it progress and improvement. Many farmers, who have long been moving on and on in the same hard beaten paths of their grandfathers, may now be seen with one or more agricultural journals in hand, searching for information in regard to their business, and feeling a much greater interest in it. Swamps and low lands, that have forever been unproductive and almost worthless, are now brought into a state of productiveness, paying a large per cent. upon the capital therein invested, and this too, simply

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by underdraining and clearing. Up-lands are being cleared of their heavy burdens of stones, fences are repaired, and a thorough system of underdraining pursued, to a greater or less extent. The sub-soil plow finds a place upon many farms, and a more thorough system of rotation practiced. Swamp-muck is sought after and is being much used as a manure, which is generally used in the compost-heap or yards, stables, &c., before applying to the soil. By this means, fields that have long been unproductive and almost barren, are now being brought into a state of productiveness. These muck deposits are numerous in our County, and at no distant day they will be much sought after and considered as mines of wealth to the farmer.

Many farmers are turning their attention to the "cultivation of fruit," and are planting large orchards. There are several very fine and superior young orchards growing in this County, which without doubt excel those of any County in the State; a number of which have received premiums from our Society the last two or three seasons. There is no branch connected with agriculture, which perhaps receives so little attention as the "cultivation of fruit." One too, which if properly pursued, would yield farmers greater profit and increase the value of their farms, above all others. Entertaining these views, and feeling that there is a lack of information upon this much neglected subject, I have deemed it advisable to elicit from those receiving premiums upon their orchards, a statement for publication, of the mode of cultivation and the general treatment of them, together with any suggestion they might think proper to present. In accordance with these views, letters were addressed to several individuals to this effect, some of which have been cheerfully complied with, and are, with a copy of the letter sent them, given below. It will be observed from these statements that care was taken in transplanting, and that the ground has been thoroughly cultivated (with care in plowing) since; and I would remark, that as far as my observation extends, orchards generally receiving careful cultivation,

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with some root or low hoed crop, have universally succeeded well, while those set in old orchards or grass land, receiving no cultivation, have proved almost an entire failure.

NEW CANAAN, CT., Jan. 26th, 1858.

BENJAMIN HOYT, ESQ.:

Dear Sir.—The fact that in the Fall of 1856 the Fairfield County Agricultural Society awarded to you the first premium on apple orchards under six years old; and in the Fall of 1857 a premium for a very superior sample of apples, grown on the same orchard, it being stated that the fruit was a sample of the product of the orchard in the fourth season from transplanting, induces me to request of you a statement in regard to your management, that thereby the community may be benefited by your experience and knowledge in this much neglected branch of husbandry. Will you have the kindness to state, for publication, the age and size of the trees at the time of transplanting; the condition of the soil; the mode, time and frequency of trimming; and whatever other particulars may seem proper to you, and necessary to secure success to others in like experiments. Hoping that you will not be discommoded by complying with my request, and that you will find it convenient to reply soon,

I remain, yours, &c.,

EDWIN HOYT,
Rec. Sec. of F. C. A. S.

NEW CANAAN, Jan. 30th, 1858.

EDWIN HOYT, ESQ., *Rec. Sec. of the Fairfield Co. Ag. Soc.:*

Dear Sir.—In reply to your inquiries of 26th inst., I would state (the same in substance as may be found in the Homestead, a valuable weekly journal published at Hartford, Ct., under date of April 9th, 1857,) that in the Fall of 1852 I began to make preparation for setting out an orchard by digging the holes from five to six feet in

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diameter, from fifteen to eighteen inches deep, and eighteen feet apart. This course allowed the free action of the frost during the following Winter. In April following, the Spring of 1853, I covered the bottom surface of the holes with manure to the depth of two inches; then threw the *soil* previously dug out, back on top of the manure; the trees were then placed, and finely pulverized soil was carefully sprinkled in among the roots. This done, the holes were filled up with the sub-soil and the trees left unstaked and without having the earth stamped down about the roots.

Since then I have tilled the lot more or less, but the crops have been on an average rather light. Previous to last year it has been sprinkled with about twelve cart-loads of manure yearly. In the Spring of 1857 I gave it a heavier coating, being obliged, contrary to my original intention, to sow it with corn for green soiling.

There are in the lot one and a quarter acres of land. The soil is rather sandy, leachy, and abounds in cobbles. On it are one hundred and fifty trees. In 1855, six or eight fine apples matured. In 1856, some three dozen trees blossomed full, but only some twenty or thirty apples matured, and they were blown off before gathering time. The Fairfield County Agricultural Society Committee of this year, 1856, reported the orchard as equal to orchards generally of ten or twelve years growth, and accordingly awarded the first premium. In 1857, most of the trees blossomed—some of them very full—but the season being unfavorable, only about two bushels of fruit matured. Of those, I sent half a bushel to the Agricultural Fair at Danbury, and as I am informed, a premium was awarded them. I have some quite fine ones yet, and they keep far better than apples grown in my old orchards. The trees were pruned for the first time in April, 1856, but I think it should have been done before. They were three years old when I transplanted them, and are of the following varieties, viz: Baldwins, Roxbury Russetts, Sweet Russetts, Esopus Spitzenberg, Vandervers, Tallman Sweets, Peck's Pleasant, R. I. Greening, Virginia Sweets, Northern Spy and Newtown Pippins. While all have made good growth, some kinds out-grow others. The Newtown Pippin is particularly a slow grower, and I very much question whether our particular locality is best adapted for them.

I should not hesitate, judging from my own experience, to use any tillable land for an apple orchard. Moderate manuring, ordinary plowing and hoeing, and for any Summer crop, and careful pruning,

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will secure a rapid growth and a fruit-bearing maturity, years before it is generally admitted that the seed will become a "tree, bearing fruit, whose seed is in itself." Had the last season been favorable to fruit, I have every reason to believe that this four year old orchard would have yielded several barrels of apples. As to making a pig-pen of an orchard, as it has often been recommended, my experience says it is a dangerous experiment. While the bark is tender and easily loosened from the body by rubbing, any animal will do a great amount of injury in a very short time. It is a mystery to me why there are so few young orchards growing in this section of our country; why these little yard-lots, which are treasured as so many acres of gold by us, home-staying, home-loving New Englanders, are not brought into more profitable use in this way. I can not see why these hills can not be made to drop their fruits even to the four quarters of the globe,—especially apples, since those that grow here are universally admitted to surpass in richness and flavor all others. As to the annual income which might be realized from such an enterprize, should it become general, even a superficial estimate will show that it would far exceed that which is promised by any other use to which we can put our farms. Yours truly,

BENJAMIN HOYT.

NEW CANAAN, Jan. 28th, 1858.

MR. EDWIN HOYT, *Sec. of Fairfield Co. Ag. Soc.:*

Dear Sir.—In compliance with your request I send you the following in regard to my "Premium Orchard."

In the Spring of 1853, I set out one hundred and twenty apple trees, purchased from the nursery of Stephen Hoyt & Sons. In the following Spring I set out seventy-five more in the same field. The holes of the former were dug from fifteen to eighteen inches in depth, and from two to three feet in diameter. Those of the latter were dug from twenty to twenty-four inches deep, and from four to six feet in diameter. They were then partially filled with rich earth or compost, so that the surface or black soil supplied the deficiency, and the sub-soil spread about the surface to be made rich hereafter.

The field since has been cultivated yearly with potatoes or some vine crop, and a light covering of stable manure has been applied two or three times, which was spread between the rows.

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A little more pains was taken the second transplanting, and the field was tilled much deeper in the commencement. The trees are now fully equal to the first setting, thus showing the importance of a little extra pains in the first start of the tree. The trees are carefully examined every Fall, about the last of October, for the "Grub or Borer." This is but a trifling job, but the most effectual method of exterminating them. An experienced eye will detect their presence, as soon as the eye is directed at the base of the tree. If any are found, they are dug out with a knife and destroyed. The bodies are washed in the Spring with a solution of weak lye, made by dissolving one pound of potash in five or six quarts of water, applied with a brush or swab. By this means the bodies are cleaned from all foreign substances, leaving them clean, bright and healthy. If the application of weak lye did no other good than to brighten the bodies, the improvement in the looks of the orchard would be enough to pay at least five hundred per cent. on the investment. The trees are pruned annually, which I consider one of the most important operations of all. This is usually done in the Spring.

The trees were three years nursery grown and about one inch in diameter at the base, when transplanted. They are now three and a half inches in diameter, having a spread of top nine feet. They have borne some very fine specimens of apples for the past two seasons, and I have reason to expect a good crop the next. The trees are set upon a soil inclined to moisture, with a clayey nature, baking somewhat in Summer, and eighteen feet apart. Many may think this distance too near, but if I were to plant my whole farm I should put them that distance, as it is the proper one for profit. Time and space will not allow me to place before you in this communication the many advantages gained by planting trees no more than eighteen feet apart.

I have now growing in my orchard three hundred and thirteen trees, some of which have had but two summers' growth, but are thriving equally well with the others. I attribute my success to care in transplanting, and constant and thorough cultivation, as no particular pains has been had in manuring, &c. In cultivating an orchard, I think very great care should be taken not to disturb the roots, which run much nearer the surface, and to a much greater distance from the tree, than many suppose. It has been my aim to cultivate the ground more for the benefit of the trees than for the annual crops.

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It is with pleasure that I give the above statement, and hope your object will be accomplished; for certainly the community need information upon this very important, but much neglected branch of husbandry. It may be seen from my statement how easily and young a tree may be brought into bearing; and I would say I feel assured that there is nothing in which the farmers of New England can engage, that will yield them so much profit as that of "raising fruit." I am, very respectfully yours,

DARIUS ST. JOHN.

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NEW LONDON

COUNTY AGRICULTURAL SOCIETY.

This Society was organized April 12th, 1854, under circumstances in some respects truly discouraging, there having previously been two similar Societies started at different times, neither of which outlived the second year; also a Union Society of the Counties of New London and Windham had been attempted with a similar result, which caused many persons to believe it a thing impossible to permanently establish an Agricultnral Society in this County. It was with great reluctance that persons were induced to become members, and every possible exertion by officers of the Society was required to prepare the way for a public demonstration.

The first annual fair was held at Norwich on the 26th and 27th days of September, 1855. The weather was delightful, and a much better display of Cattle, Horses, Sheep, Swine, Vegetables, Fruit, Cabinet Manufactures, Fancy Work, &c., than could reasonably have been expected, was exhibited, and the officers of the Society had the satisfaction of knowing that their labors had not been lost. About nine hundred dollars were paid out in premiums, and after paying all other expenses, which were large, a considerable balance remained in the treasury.

At the second exhibition a decided improvement was plainly perceivable. The weather was very fine, and everything passed off to the gratification of the large concourse that had assembled.

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The third annual fair and cattle show was held as usual on the parade ground in Norwich, on the 30th of September and the 1st and 2nd days of October, 1857. Once more it was our good fortune to have clear weather, and the people who were more eager than ever before to witness the exhibition, assembled to the number of about 15,000.

The first day of the fair was devoted exclusively to the reception and arrangement of articles offered for exhibition. On the second and third days within the enclosure a beautiful scene was presented to view. Of the thousand and one articles on the ground, we shall briefly mention a few.

The Herds of Cattle presented by James A. Bill, of Lyme, Thomas A. Clark, of Lisbon, T. P. Manning, of Lebanon, John and James Manwarring, of Montville, and George Hough, of Bozrah, showed a marked improvement on former years.

The Devon Cattle on exhibition were of superior quality, and were chiefly presented by Dr. D. F. Gulliver, of Norwich, James A. Bill, of Lyme, John S. Maine, of Stonington, J. P. Manning, of Lebanon, Silas Frink, of Franklin, and Samuel Prentice, of Norwich.

Of Durham, Ayrshire and Alderney, but very few entries were made, and those were chiefly from Stonington.

A large number of Grade and Native animals were on exhibition, which were highly creditable to their owners.

There was an unusual number of entries of Milch Cows, six Herds of Cows, twenty-six entries of Heifers, three town Teams, thirty-four entries of Working Oxen, all of which were much finer than those shown at previous exhibitions. A pair of mammoth oxen were exhibited by Nathaniel Hayward, of Colchester, weighing over 6,600 pounds.

A large number of fine Steers were presented, which indicate for the future a class of working cattle in our County inferior to none in the State.

The show of Stallions and Colts, and Brood Mares and Colts, was larger than usual and very fine.

There were forty-two entries of Butter, which it will be

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difficult for any future exhibition to excel, and twenty-two entries of Cheese which were highly commended.

Native Wines, Sugar Cane Syrup, Vegetables, Grain, Fruit, and Flowers, were presented in profusion. Carriages and Harnesses, Cabinet Manufactures, Farm Implements and Machinery, of the latest and most improved patterns, were on exhibition in great variety.

To James A. Bill, of Lyme, was awarded the first premium for the best cultivated Farm, also for Reclaimed Salt Meadow, Swamp land, and Underdraining; and to Daniel W. Coit, of Norwich, for the best Vegetable Garden.

FIELD CROPS.

Statement of Rev. T. L. Shipman, of Griswold, to whom was awarded the first premium on Rye. "Land was good. Soil sandy. One hundred and fifty pounds of guano applied to one acre. Plowed and harrowed once each. One bushel and four quarts of seed sown September, 1856. Yield twenty-five bushels." No manure had been used on the land for several previous years.

Statement of George F. Langworthy, of Stonington, to whom was awarded the first premium on Corn, the yield being ninety-two and three-fourths bushels on one acre. "About two-thirds of the land was planted with the Rhode Island white cap corn; the remaining third with a large kind of yellow corn, ears eight rowed. Land a dark sandy loam. There was on the land a light crop of sorrell and herds-grass, which was plowed in the last of June, 1856. One hundred and sixty pounds of Peruvian guano was spread on the land and harrowed in with buckwheat, which was taken off in the fall. About one thousand bony fish were put on the ground and plowed in the last of October. This season there was spread on twelve loads of barn-yard manure, which was plowed in about the first of May. The corn was planted about the twelfth of the same month. Weeding was done about the first of June; hoeing second time about the tenth of June; third hoeing first of July. In August went over the ground again and cut down the

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weeds. The top stalks were taken off, and the corn permitted to ripen on the hill."

Statement of James A. Bill, relating to the raising of a crop of Barley. "The soil upon which it was raised was a dark moist loam, well underdrained, which had been cultivated with corn the past two years; before this it had been a waste barren pasture. At the first time of planting, the land received a dressing of forty loads of stable manure and one hundred bushels of ashes. The second time of planting, the same quantity and kind of manure was used, and at each time was plowed in beam deep. No manure this season. The ground was plowed twice, and barley sowed dry and broadcast, and harrowed in second week in May, and harvested early in August. The quantity of seed used was two bushels. The yield was twenty-nine bushels on one acre." First premium awarded.

Statement of S. G. Kingsley, of Franklin, respecting the raising of a crop of Turnips.—"Land one-fourth of an acre; soil gravelly loam; had not been plowed or manured for twenty years prior to June, 1857, when it was plowed and harrowed; quantity of manure used was five loads stable manure, twenty bushels ashes, and fifty pounds guano. The 20th day of July sowed one-quarter of a pound of seed and harrowed and bushed thoroughly; yield, two hundred and thirty-five bushels." First premium awarded.

Statement of Prentice F. Smith, of Franklin, in relation to the raising of a crop of Spring Wheat, on something less than one acre of ground.—"The land on which the wheat was raised was a yellow loamy soil, rather level, and was cultivated with corn the previous year, and was manured with about twenty loads of farm-yard manure; was plowed about the first of May, 1857, and harrowed once before sowing and the seed harrowed in. The only manure used the present season was about three bushels of unleached ashes on a small, dry knoll. The quantity of seed was about three-quarters of a bushel."

The exercises on the stand were introduced by prayer by Rev. J. P. Gulliver, of Norwich. After which, Hon. L. F. S.

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Foster, Hon. A. A. Burnham, Rev. J. P. Gulliver, Dr. Wm. P. Eaton, and Hon. John F. Trumbull, made short extemporaneous addresses, which were well worthy of the gentlemen from whom they came. After which a large and beautiful balloon ascended from the grounds, amid the shouts of assembled thousands, and was borne along by a gentle breeze some seventeen miles, to the town of Canterbury, where it alighted in safety.

The amount of premiums paid was about $1,300; and after defraying all other expenses, a small balance was left out of the year's receipts. During the past season quite an amount of money has been expended in permanent fixtures.

This Society has no permanent place for holding their Annual Exhibitions—a circumstance much to be regretted, as a large amount of money is every year expended in erecting and taking away temporary enclosures.

The authorities of Norwich have generously offered us the use of the Parade Ground, which has been very thankfully received and occupied by the Society thus far. Although a delightful spot, and the location all that can be desired, yet there is a lack of room which can not be made up in that place. A very much larger ground is desirable, especially for the exhibition of horses and cattle. On the last day of the Fair the grounds were literally packed with people.

This Society, in some respects, may be considered as being in a flourishing condition, but it has hardly commenced the great work which we trust it is designed to accomplish.

At the stated Annual Meeting of the Society, held on the third Wednesday of December, 1857, the following persons were chosen officers for the ensuing year:

President, JOHN P. BARSTOW, of Norwich.

Vice Presidents, THO'S A. CLARK, of Lisbon; ASHBEL WOODWARD, of Franklin; CHARLES M. DAVIS, of Stonington; THOMAS FITCH, of New London; JAMES GRISWOLD, of Old Lyme; J. C. HAMMOND, of Colchester.

Corresponding Secretary, HENRY BILL, of Norwich.

Recording Secretary, EDWIN PALMER, of Norwich.

Executive and Finance Committee, ISAAC JOHNSON, of

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Norwich; JOHN BREWSTER, of Ledyard; Rev. WM. CLIFT, of Stonington; CALVIN ALLYN, of Montville; A. H. SIMMONS, of Mystic; E. M. BREWSTER, of Griswold; GEO. S. HARTSHORN, of Franklin; E. WHEELER, of N. STONINGTON; D. S. WOODWORTH, of Lebanon.

County Director for State Society, JAMES A. BILL, of Lyme.

Auditors of Accounts, JAMES MANWARRING, of Montville; JESSE S. ELY, of Norwich; AMOS W. PRENTICE, of Norwich.

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TOLLAND

COUNTY AGRICULTURAL SOCIETY.

OFFICERS.

President, E. H. Hyde, Stafford.
1st Vice President, Rufus B. Chamberlain, Coventry.
2nd Vice President, John S. Yeomans, Columbia.
Secretary, E. E. Marvin, Tolland.
Treasurer, A. P. Hyde, Tolland.
Auditor, Marcus Woodward, Somers.

From the Reports of the several Awarding Committees to the Tolland County Agricultural Society, at their Annual Meeting, held on the 21st day of October, A. D. 1857, are selected those that are of general interest, viz: the report on

FARMS, HORTICULTURE, AND PLOWING.

There were but two farms entered for premiums—that of Mr. S. F. West, of Columbia, and that of Mr. Joseph Vaughn, of Tolland. Mr. West's farm consists of two hundred acres of elevated land, being on one of those hills in the Southern part of the County, which can be seen a great distance. Mr. West has been in possession and control of the farm during the last fifteen years, making improvements from year to year as opportunity afforded. His mowings have been cleared of stones, and good and substantial walls erected all over the farm, dividing it into small lots either

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for plowing or mowing. Instead of mowing bushes in the pastures as his ancestors were accustomed to do, once in a year or two, Mr. West goes at them with a good will, determined to subdue them root and branch. With his plow he turns their roots towards the sun, and after harrowing and loosening sundry small stones, an underdrain is commenced, beginning at the highest point and continuing down to the main drain or brook. Of these underdrains, Mr. West pointed out to your Committee the localities of many. They are usually dug two or three feet deep, a sluice of six inches square or more, according to the quantity of water to be carried off, is covered with flat stones, and the remainder of the ditch filled with small stones within twelve or fifteen inches of the surface, draining the land effectually, and leaving no unsightly ditches or obstacles in the way of the plow, or scythe, killing the bushes, and after a few years cultivation the land is stocked down, either mowed or pastured, yielding large quantities of grass and feed, instead of bushes and useless weeds. The sub-soil of Mr. West's farm consists of clay and sand, very hard and almost impervious to the water, and underdraining seems to be the only way to fit the soil for cultivation. Your Committee were shown a piece of about three acres of land, which had until within three or four years lain almost useless, yielding little or nothing besides bushes, from which a crop of oats had been taken this year of about twenty bushels to the acre; the stocking looked fine and it bids fair to remunerate the cultivator in greatly increased crops. The benefit derived by underdraining on farms of a soil similar to Mr. West's or Mr. Vaughn's, can only be appreciated by an examination. A description on paper is too meager, and your Committee recommend a personal inspection of both these farms by all who wish to improve their land by underdraining. Mr. West furnishes your Committee the following items in relation to his farm:

60 acres of woodland and sprouts.
40 do. mowing, yielding 1½ tons hay per acre.
5 do. corn, average 35 bushels per acre.
5 do. oats, average 30 bushels per acre.

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10 acres of buckwheat, crop light—new land.

2 do. rye.

½ do. onions, yielding 250 bushels—usually sell for 50 cents a bushel.

The stock on the farm consists of

2 horses.

20 neat cattle, raised on farm.

35 sheep.

Mr. West has three acres to young orcharding, and a fair supply of other fruit, evergreens, shrubbery, &c., about the house.

The fertilizers used in cultivation of his farm, beside the manure from the barn, pig-stye, &c., are guano, lime, plaister, ashes and superphosphate. Guano used for corn and buckwheat, harrowed in. The results are favorable.

Lime and plaister, one-third plaister used with two or three bushels to the acre on grass and potatoes, with good results. Mr. West has had little success with superphosphate, and has used Mapes.

He has used seventy-five pounds guano to the acre, three years in succession, for buckwheat, with no diminution in the crop. The fields are usually cultivated with corn first, then oats, and stocked down; occasionally with rye, then potatoes, and then oats and seeded down.

Mr. West gave your Committee other information respecting his mode of managing his farm, clearly showing that his mode is systematic, and that his investments are paying him as large dividends as the stock of some institutions founded on a sub-soil less tenacious than his.

Mr. Vaughn's farm consists of one hundred and sixty-two acres, of high, rolling land mostly, with low and natural meadows. He too takes out the bushes by the roots as the most effectual method to destroy them, by breaking up his bush-pastures, underdraining and thorough cultivation, bringing his old field and pastures into a profitable state of cultivation. Most of his fields are enclosed with high stone fences, the stones having been removed from his mowing

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and fields, rendering them smooth and free from obstacles in the use of the plow or scythe.

Mr. Vaughn furnished your Committee with the following statistics relative to his farm. He mows usually from forty to fifty acres, yielding a little less than a ton of hay to the acre.

6 acres to corn, crop light—seed failed.
1½ do. potatoes, crop not large.
10 do. oats, average from 15 to 20 bushels per acre.
4 do. rye, average 10 bushels per acre.
4½ do. buckwheat, average 30 bushels per acre.

The crop amounted to 120 bushels, of which one acre produced, by actual measurement, 33 bushels. Mr. Vaughn sows his buckwheat about the 25th of June.

His stock consists of

1 horse.
12 neat cattle.
14 sheep.

Also, a good pen of porkers and shoats.

He has used poudrette with no visible effect, and uses no other fertilizers save the addition to his yard and pig-stye annually of about seventy-five loads of muck.

He has about two and a half acres of orcharding, bearing now, with other fruit trees.

His farm for eight years, previous to the last four years, was occupied by a tenant. Mr. Vaughn having been where deep digging often yields a rich return, has resumed his old farm and commenced improving it thoroughly. In one field of seven acres, near his house, he has eighty rods of underdrain finished and commenced, which when completed will make the field one of the most valuable on the farm, which a few years since was covered with bushes and rocks.

The bushes are gone, the rocks are in the walls, the small stones are in the drains, which he informed your Committee were dug from four to seven feet deep, a sluice stoned up and covered with flat stones at the bottom, and the remainder filled with small stones.

Much more might be stated relating to both of these

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farms, but your Committee wish, if possible, to create a desire in the members of the Society to examine these farms, and either adopt their mode of improvement, or one that can safely said to be a better.

In the judgment of your Committee, Mr. S. F. West is entitled to the first premium, and Mr. Vaughn the second.

All of which is respectfully submitted.

Signed, MARCUS WOODWARD.
VALOROUS KIBBEE.
HUBBARD TUCKER.

HORTICULTURE.

The Committee on Horticulture respectfully report. The most important object to be gained in the organization of a Society like this, is to stimulate its members to action in the right direction; to promote and encourage whatever seems best adapted to the interests of the inhabitants of a certain locality. For instance, there are certain localities and soils well adapted to the cultivation of wheat; another of tobacco; others of grass, grains, &c. It is to this end that your Committee wish to call the attention of the citizens of this County to the importance of the department on which we report. Having been observers of the contributions of this Society for years, we think it may be safely said that there is no one object that deserves more attention than the cultivation of fruits, and no department of agriculture that claims the attention of the farmers of Tolland County in a remunerative point of view more directly. Whatever may be said in regard to the productions of this County, it must be admitted by all that the exhibitions of fruits from year to year, shows most conclusively the adaptedness of the soil to this very important department of agriculture. Nothing is more certain than that Tolland County already possesses the facilities for the cultivation of fruits in a degree that may yet prove eminently successful.

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PLOWING.

The Committee on Plowing, with due respect, report. Good plowing is a great desideratum in good farming, and indifferent, shallow plowing is inevitably followed by corresponding crops.

To guide the plow steadily and gracefully, cutting the furrows straight and laying them uniformly, and at the same time directing the team, requires no ordinary degree of practice, skill or capacity. To men of the talking profession and of the arts and trades, if you doubt it, just try your hand by actual experiment between the plow handles, and you will be convinced of the truth of the assertion.

Good plowing consists, first, in turning up the soil to a sufficient depth to ensure the action of the atmosphere and seasons upon the under portions of it, to at least eight or ten inches, according to the variety of the soil. Second, in uniform width of furrows, and those evenly turned. Too wide a cut causes the furrow-slice to roll and leave a portion uncut and unturned; too narrow causes a loss of time in going over the land without any benefit; consequently sound judgment must be used to have it just as it should be. Third, in leaving the dead-furrows in proper condition, that is, neither too deep nor too shallow, yet carefully avoiding any increase in the depth of them. The piece of ground selected for trial was a very fair sward, tolerably free from stones; the soil about ten inches deep. There were but three competitors, each of whom exhibited no inconsiderable degree of skill and judgment in guiding the plow. In fact, it was universally admitted to be the best work ever performed at our County Fairs. We will speak, however, of each rival particularly.

Mr. Hubbard Tucker, of Vernon, performed his eighth of an acre in thirty-two minutes, with double plow, to the depth of ten or eleven inches; work executed in an admirably workman-like manner; team, one pair of oxen and one horse; team too light for the plow or depth of furrow turned.

Mr. Thomas J. White, of Bolton, plowed his eighth of an

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acre in twenty-two minutes, with Raggles, Nourse & Mason's Eagle Plow, No. 75; work well done: furrows beautifully laid, but cut a tride too wide in some places, causing them to roll and cover without turning up the entire sod; had he made one furrow more in fifteen feet, and taken a little more time, the work would have been complete: dead furrows left in excellent condition, a little more shallow than the ordinary furrows; team, one pair of oxen and a horse.

Mr. A. W. Chapman, of Vernon, plowed an eighth of an acre in twenty-nine minutes, with Whitmore's plow: work well performed; furrows cut true and well turned, but injured his work by making unnecessarily deep, dead furrows; team, one pair of oxen and a horse.

Your Committee award as follows, viz:

Hubbard Tucker, Vernon, Double Plow, - -	$4
Thomas J. White, Bolton, best with Single Plow, -	4
A. W. Chapman, Vernon, second best do. do.	3

Respectfully submitted,

Signed, SAMUEL F. WEST.
FRANCIS PORTER.
JABEZ COLLINS.

TOLLAND COUNTY AGRICULTURAL SOCIETY.

The Tolland County Agricultural Society has been organized now about six years and is constantly increasing its members, utility and interest.

The Annual Fair was held this year on the 7th and 8th of October, at Tolland, and was attended by as large a gathering as at any past exhibition.

The Show of Cattle improves year by year. Blood stock increases and a great advancement is noticeable in the out-door display at each succeeding festival. The Fair, though not so extensive as at some times previous, was of

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produce, manufactures and arts, by far the superior in the quality of the articles displayed. Notwithstanding the hard times, the receipts of the Society are more than its expenditures, so that we close the year richer than when we commenced it.

As yet we have no enclosure, and have met under the disadvantage of assembling on public ground; but measures are now advancing for the purchase and enclosing of a permanent location, which if successfully matured, will place the Society in a situation where we may reasonably hope, we can regulate our exhibitions to better advantage, increase our premiums, and more effectually encourage the different departments of scientific industry.

E. E. MARVIN,

Secretary.

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WINDHAM
COUNTY AGRICULTURAL SOCIETY.

The Annual Meeting of this Society was held at the Town Hall in Brooklyn, December 3rd, 1857. The President being absent, Septimus Davison, Esq., was appointed Chairman. A Committee was appointed, consisting of John Gallup, 2d., Charles Mathewson and Ralph W. Robinson, to report the best means to raise funds to pay the indebtedness of the Society. Owing to the inclemency of the weather, few members were in attendance, and the meeting was adjourned to December 17th, to be held at the same place.

December 17th, 1857, the President, Ezra Dean, Esq., called the meeting to order, when the reports of the Treasurer and Auditors were read and accepted. The report of the Committee appointed to raise funds to meet the indebtedness of the Society, incurred by purchasing land, fencing, &c., was adopted, and the Committee were authorized to borrow money, secured by mortgage, if necessary, to pay outstanding claims against the Society.

The following officers were then elected for the ensuing year, viz:

President, David Gallup.

Vice Presidents, Charles Osgood, George Sanger, Wm. Bennett, Jr.

Corresponding Secretary, Albert Day.

Recording Secretary, James B. Whitcomb.

Treasurer, John Gallup, 2d.

Auditors, Charles Mathewson, Ralph W. Robinson, George A. Paine.

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Standing Committees.

Willard Day, Brooklyn; J. H. Coe, Killingly; Samuel H. Williams, Pomfret; E. L. Fuller, Plainfield; Jesse P. Burnham, Hampton; James G. Martin, Chaplin; Dyer H. Clark, Ashford; Joseph Dorsett, Eastford; Benjamin Gallup, Voluntown; Charles Mason, Sterling; John Paine, Woodstock; Sylvanus G. Bullock, Putnam; Joseph J. Green, Thompson; John P. West, Windham; Mason Morse, Canterbury.

Ezra Dean was appointed Delegate to the State Society.

The Corresponding Secretary called the attention of the meeting to the necessity of petitioning the Legislature of this State for additional aid to the County Societies, and it was unanimously resolved that this Society petition the Legislature for a grant of $300, in addition to that already bestowed. The petition was drawn and copies forwarded to the Standing Committee in each town, for signatures, with particular instructions to return them to the Corresponding Secretary by the last of April following, that they might be in readiness to be sent to the Legislature for reference. Very few of the petitions were returned until after the opening of the Legislature, and too late for a reference, much to the regret of the Executive Committee, and to the great mortification of the Corresponding Secretary, to whose care they were entrusted. At the request of the Society, Ex-Governor Cleveland appeared before the Committee of the Legislature on Agriculture, and urged the necessity of making more liberal grants to the County Societies as the best means of promoting the agricultural interests of the State.

Notwithstanding his able advocacy, the petitions of the New London and Middlesex County Societies which had been presented in consequence of an understanding between them and the Windham County Society, were rejected. That of the last named Society, as we have said, was not received in time to be presented. The Society, since its last annual meeting, has received from one of its members, Gov. Elisha Dyer, of Providence, a present of one hundred copies

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of a beautiful and finely engraved Certificate of Life Membership, and the Die of a Seal, both of which have been adopted. This is but one of the many acts of benevolence by which this gentleman has endeared himself to the citizens of his own State, and this County. A vote of thanks was unanimously passed. The Secretary was directed to order four hundred additional copies of the certificate. The President of the Society was instructed to apply to the officers of the Norwich and Worcester R. R. Co. and of the Hartford, Providence and Fishkill R. R. Co., to issue excursion tickets on the last day of the Show and Fair. This request was complied with by the officers of the Norwich and Worcester R. R. Co., who are entitled to our thanks for their generosity in our behalf.

The Show and Fair was held upon the Society's enclosed lot on the 16th and 17th days of September, under the direction of Charles Osgood, Esq., as Chief Marshal, to whom the Society is much indebted for the active and efficient discharge of his duties. Of the exhibition we shall speak only in general terms. Entries in the several departments were about as numerous as at previous exhibitions of the Society. The long trains of working oxen, "strong to labor," were very creditable to the farmers of the County. Of thorough bred stock the exhibition was somewhat less than at previous Shows. The fine Durhams of the Messrs. Lyon & Sumner, of Woodstock, were wanting, they having previously disposed of some of their finest animals.

The fruit exceeded in beauty the most sanguine expectations of the Society. Contributions in fancy work, domestic manufactures, and fine arts, by the ladies, were abundant and beautiful, while the butter and cheese made by their fair hands would excite some little discontent with his lot in the bosom of the most obstinate bachelor. The well tanned leather of Ezra Dean, carriages by L. M. Dean, spectacles by Edwin Newbury, and watch-cases by Preston & Jacott, had a finish and elegance worthy of the most skillful artisans. One of Ayres' self-acting farm wells, was in successful operation throughout the exhibition. By the Treasurer's report it will

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be seen that the receipts during the Fair were less than at some previous exhibitions, owing in part to the unfavorable state of the weather on the 17th. A drizzling rain commenced early in the morning and continued through the day. This circumstance hindered those at a distance from attending.

An interesting address was delivered by the Hon. Francis Gillette, which was listened to by a large and attentive audience throughout, notwithstanding the unpleasant weather. A vote of thanks was unanimously adopted by the Society, and a copy requested for publication. We regret very much that any considerations should have induced the honorable gentleman to withhold it. The reports of the Judges were read by the Secretary, and the Exhibition brought to a close.

It is easy to make general remarks about the importance of agriculture; but only a careful and accurate estimate of the amount of capital invested in this great department of human labor will give any definite idea of its immense extent. We have listened with astonishment to the almost fabulous accounts of the gold product of California. But the agriculturists of this country create annually an amount of wealth estimated at sixteen hundred millions of dollars, greater than the amount created by all other classes, the mines of California included. But it is not alone, perhaps not chiefly by contemplating this great production of wealth, that the true grandeur of agriculture can be best understood and appreciated. To get just vi ws upon this subject, we should bear in mind that all other forms of human industry are not only related to, but are actually dependent upon agriculture; and when these things are considered, it seems not too much to ask for the farmers of the State the liberal aid of the Legislature.

These views derive confirmation from a consideration of the course which the Legislature has adopted in relation to other objects which have been deemed worthy of support. From the year A. D. 1854 to A. D. 1856, inclusive, the Legislature has made appropriations to different institutions, amounting in the aggregate to the sum of $76,250, while

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during the same period only $12,500 have been appropriated for the purposes of agriculture. * * *

There are in the State eight County, with several Town Associations. We have not been able to learn the exact amount offered in premiums by each Society and Town Association, but it will probably vary from $600 to $1,200 each, amounting nearly or quite to $8,000—a fair proportion of which is awarded. Besides this, a number of these Societies own tents or buildings, with enclosed lots and cattle-pens, making an amount of property that may safely be estimated at $5,000. These associations are conducted by their officers at no small sacrifice of time and money. The whole amount received by these officers in compensation would not probably exceed $100, which is hardly enough to pay postage, stationery and other actual expenses. These County Societies receive from the State $1,600 annually.

* * * * * *

When these facts are considered, it is evident that a true economy, to say nothing of a wise liberality, would seem to indicate the County Associations as objects of Legislative favor. If there be any advantages in associations of this kind, their value must depend in a great degree upon the extent to which they are diffused among the people. Now the County Associations, as it were, bring home these advantages to each man's door; or at all events, render them accessible to all classes of people in every part of the State. Upon these grounds, we claim that more liberal appropriations should be made to the County Associations. The Windham County Society has been compelled to withhold offers of premiums upon important classes, for want of means. The County Societies would not fail to exert a much more powerful influence on the agriculture of the State, could they be made to meet the wants of their members.

We can not conclude this report without an allusion to the lesson which the times furnish, upon the importance of the great pursuit in which we are engaged, not for the purpose of boasting, but by way of reminding ourselves of the importance of the trusts committed to our charge.

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How often are we reminded that the great financial storm which has swept over the country, can have no permanent evil effects, because the earth has brought forth abundantly. Suppose the case were reversed; if instead of a deranged currency we had to contend with a deficient supply of the productions of the earth? We should soon realize that commerce and manufactures are branches of human industry which must pay perpetual tribute to the tillers of the soil.

In behalf of the Executive Committee,

ALBERT DAY,

Corresponding Secretary.

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MIDDLESEX

COUNTY AGRICULTURAL SOCIETY

The Middlesex County Agricultural Society held its Annual Fair on the 7th, 8th and 9th of October, 1857. The anniversary passed off pleasantly and profitably. There were the usual number of entries of farms, field crops and gardens, and the judges in these departments expressed themselves highly gratified by the evidences of progress and thrift.

Of Neat Cattle, the Show was good, but not quite as large as last year. Some of the Cows and Heifers were very fine.

The Working Cattle of this County were on the ground in force, as usual, and for excellence are not easily surpassed.

But very few Sheep were exhibited. Indeed, these valuable animals are growing scarcer each year in this County, and we suspect that sheep-breeding is on the decline throughout the State. Why is it? There is no domestic animal whose flesh is better adapted to the digestive system of man, than good mutton. Yet we can not have it. The truth is, the farmers are unwilling to risk the loss they must sustain from dogs, if these worthless animals are suffered to run at large and multiply as heretofore. It is narrowed down to this issue, dogs or sheep! and the dogs have it. We wish those most interested in this matter would take Lynch-law into their hands and wage war on every dog not law-protected, until the Legislature shall see fit to make some law

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which shall be an effectual protection to sheep against this cruel nuisance.

Of Swine, a fair exhibition, and the young animals were sold at very good prices.

Horses.—Sixty-four of these noble animals were entered for premium, being more than one-third as many as were offered at the State Fair. To particularize the good points of each, would exceed our limits. It is evident that this part of the Show is increasing in interest. We hope better arrangements will be made ere another year comes round, so that all exhibitors may feel satisfied that the Society is disposed to give that share of attention to this class that it justly demands.

The exhibition at McDonough was very good, especially the Fruits; but we regret to say that the manufacturers of this County seem to take no interest whatever in the Society, although the second article of its Constitution declares that one of its objects is the promotion of the "mechanic arts." We think Middlesex County can show as great a *variety* of manufactured articles as any other in the State. We shall see hereafter.

This Society owns no Buildings or Show Grounds. An effort is being made to purchase. Should we succeed, it would insure permanence and be a nucleus around which many interests would gather to give it strength and prosperity.

The Annual Meeting was held November 11.

The following officers were chosen:

President, Frederic W. Russell, Esq., of Portland.

Vice Presidents, F. W. Steuben, Ben. W. Coe, E. Brainerd, Jr., Alfred Roberts, W. S. Hall, J. M. Clark, J. S. Selden, S. G. Tibbals, M. H. Griffin, G. W. Burke, Jos. Edwards, W. G. Buell.

D. BARNES,

Secretary and Treasurer.

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GREENWOODS AGRICULTURAL SOCIETY.

WINSTED, Feb. 14th, 1858.

Secretary State Agricultural Society:

SIR,—In accordance with your request of the 10th inst., I remark that the Greenwoods Agricultural Society was chartered and organized in 1851, and although embracing in its charter Litchfield County, but a few towns in the North-east corner of the County have taken part in its exhibitions.

The towns which take part and are most interested in our exhibitions and prosperity, are Winchester, Colebrook, Hartland, Barkhamsted, New Hartford, Torrington and Norfolk. It is emphatically a grazing district, and butter and cheese the staple products. It is perhaps less adapted to grain culture than any other portion of the State, of the same extent; but notwithstanding, our energetic farmers cultivate considerable fields of corn, oats and buckwheat; an occasional field of winter rye; and in a few instances some fine samples of wheat have been shown at our Fairs, which would not suffer in comparison with some of the best Western varieties.

Considerable attention is given to stock, and the Devons of this vicinity have a world-wide reputation, and the marks of improvement derived from their introduction, are probably more clearly shown in the stock at our Shows than at any other exhibition of the kind in the country. To the truth of the above, I think our State Fairs, at least, bear testimony, as it will also do to the superior quality of our butter and cheese.

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There is quite an interest manifested in the culture of fruit within the last few years, and it is doubtless somewhat stimulated by our annual exhibitions, at which may be seen as fine samples of apples of all varieties, pears, peaches, grapes, cranberries, &c., as can be found at any other Show, of not larger extent. The various root crops are a prominent item of our yearly products. The productions of our mechanics, with the endless variety of useful and fancy articles which are brought to our Fairs by the ladies, make an exhibition that is worth a day's time to look at.

The limited extent of our Society, and want of ample funds, necessarily render our operations limited, and but for the yearly appropriation from the State Treasury, we should be unable to continue our Shows; at least to offer such inducements in the way of premiums as would make them in any way attractive.

For years past the Society has expended between four and five hundred dollars annually, in carrying on its operations, quite the larger proportion of which has been awarded in premiums for the best cultivated farm; best farm products; products of dairy; horses of all kinds; stock of all descriptions; products of the work-shops and household articles; fruits and flowers; paintings, drawings, &c. And we say with confidence, that we believe the money expended in carrying on the operations of the Society, has not been expended without benefit; and that our annual coming together is attended with much good, not only in a pecuniary matter but socially and morally.

Yours respectfully,

HIRAM PERKINS,

Secretary Greenwoods Agricultural Society.

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NOTE.

The digests of reports from the County Societies, with the exception of those from Windham and Tolland Counties, have been furnished as they appear by the Secretaries of the several Societies. As the edition of the Transactions for 1857 is less than those of former years, it has been deemed inexpedient to publish the awards of premiums of the several Societies; and as in the case of those above named, where the full reports were furnished, such portions as in the opinion of the Sub-Committee would be of general interest and utility, have been published. It is very desirable that there should be an union of action in reference to this matter, and that provision should be made that the reports of the several Counties should come into the hands of the Executive Committee in season for publication in the Transactions.

HENRY A. DYER,

Corresponding Secretary.

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